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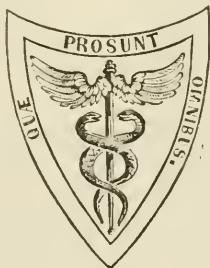
EDITED BY

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OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES,
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TO READERS AND CORRESPONDENTS.

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Epilepsy: its Symptoms, Treatment, and Relation to other Chronic Convulsive Diseases. By J. RUSSEL REYNOLDS, M. D., London F. R. C. P., formerly Assistant Physician to the Westminster Hospital and the Hospital for Sick Children. London: John Churchill, 1861. (From the Publisher.)

Lectures on the Germs and Vestiges of Disease, and on the Prevention of the Invasion and Fatality of Disease by Periodical Examinations. Delivered at the Royal Infirmary for Diseases of the Chest. By HORACE DOBELL, M. D., &c. &c., Physician to the Infirmary. London: John Churchill, 1861. (From the Publisher.)

Spinal Debility: its Prevention, Pathology, and Cure, in Relation to Curvatures, Paralysis, Epilepsy, and Various Deformities. By EDWARD W. TUSON, F. R. C. S., formerly Surgeon to Middlesex Hospital. London: John W. Davies, 1861. (From the Publisher.)

A System of Surgery, Theoretical and Practical, in Treatises by Various Authors. Edited by T. HOLMES, M. A., Cantab., Assistant Surgeon to Royal Hospital for Sick Children. In four volumes. Vol. I.: General Pathology. Vol. II.: Local Injuries; Diseases of the Eye. London: Parker, Son & Bourn, 1860-61. (From the Editor.)

The Diseases of the Prostate, their Pathology and Treatment; comprising the second edition of the "Enlarged Prostate," and a Dissertation "On the Healthy and Morbid Anatomy of the Prostate Gland," to which the Jacksonian Prize for the year 1860 was awarded by the Royal College of Surgeons of England. By HENRY THOMPSON, F. R. C. S., Assistant Surgeon to University College Hospital, &c. London: John Churchill, 1861. (From the Publisher.)

On the Parasitic Affections of the Skin. By T. McCALL ANDERSON, M. D., Physician to the Dispensary for Skin Diseases, &c. London: John Churchill, 1861. (From the Publisher.)

The Causes and Treatment of Imperfect Digestion. By ARTHUR LEARED, M. D., Oxon., M. R. I. A., &c. &c. &c. London: John Churchill, 1861. (From the Author.)

On the Sounds caused by the Circulation of the Blood. By ARTHUR LEARED, M. D., Dublin. London, 1861. (From the Author.)

A System of Surgery; Pathological, Diagnostic, Therapeutic, and Operative. By SAMUEL D. GROSS, M. D., Professor of Surgery in Jefferson Medical College, Philadelphia, &c. &c. Illustrated by 1227 engravings. Second edition, much enlarged and carefully revised. In two volumes. Philadelphia: Blanchard & Lea, 1862. (From the Publishers.)

Lectures on the Diseases of Women. By CHARLES WEST, M. D., F. R. C. P., &c. &c. &c. Second American from the second London Edition. Philadelphia: Blanchard & Lea, 1861. (From the Publishers.)

Lectures on Materia Medica and Therapeutics, delivered in the College of Physicians and Surgeons of the University of the State of New York. By JOHN B. BUCK, M.D., late Professor of Materia Medica and Medical Jurisprudence. Prepared for the Press by his friend, C. R. GILMAN, M.D., &c. Third edition. New York: S. S. & W. Wood, 1861. (From the Publisher.)

The Principles and Practice of Obstetrics. By GEORGE S. BEDFORD, M.D., Professor of Obstetrics, &c., in the University of New York. New York: S. S. & Wm. Wood, 1861.

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Library of Practical Medicine. Published by order of the Massachusetts Medical Society, for the use of its Fellows. Vol. XXIII. Containing *Placenta Prævia: its History and Treatment*. By WM. REED, M.D. Philadelphia: J. B. Lippincott & Co., 1861. (From the Author.)

The Excision of Joints. By RICHARD M. HODGES, M.D. [Boylston Prize Essay.] Boston, 1861. (From the Author.)

The Placenta, the Organic Nervous System, the Blood, the Oxygen, and the Animal Nervous System, Physiologically Examined. By JOHN O'REILLY, M.D., F.R.C.S. Ireland, &c., &c. New York, 1861. (From the Author.)

Notes on the Surgery of the War in the Crimea, with Remarks on the Treatment of Gun-shot Wounds. By GEO. H. B. MACLEOD, M.D., F.R.C.S., &c., &c. Philadelphia: J. B. Lippincott & Co., 1862. (From the Publishers.)

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Baron Larrey. A Lecture. By D. HAYES AGNEW, M.D., Lecturer on Anatomy, &c., &c. Published by the Class. Philadelphia, 1861.

Address delivered at the opening of the New Clinical Lecture-Room of the Philadelphia Hospital. By Dr. J. LEIDLOW, one of the Medical Board, and Lecturer on Clinical Medicine. Philadelphia, 1861.

The Forty-Fifth Annual Report of the Directors of the American Asylum at Hartford for the Education and Instruction of the Deaf and Dumb. May 11 1861. Hartford, 1861.

Report of a Committee of the Boston Society for Medical Improvement on the alleged dangers which accompany the Inhalation of the Vapour of Sulphuric Ether. Boston, 1861.

Report of the Medical Superintendent of the Kentucky Eastern Lunatic Asylum, at Lexington, Kentucky, for the year 1861. Frankfort, 1861. (From W. S. CHURLEY, M.D.)

The following Journals have been received in exchange:—

Annales Médico-Psychologiques. Rédigé par MM. les Docteurs BAILLARGER, CERISE, et MOREAU [de Tours]. July, October, 1861.

Journal de la Physiologie de l'Homme et des Animaux. Publié sous la direction du Dr. E. BROWN-SÉQUARD. April, 1861.

- Gazette Médicale de Paris. August, September, October, November, 1861.
- Journal de Médecine de Bordeaux. Rédacteur en chef, M. COSTES. Sept., 1861.
- Medical Times and Gazette. October, November, December, 1861.
- The British and Foreign Medico-Chirurgical Review. October, 1861.
- Guy's Hospital Reports. Edited by SAMUEL WILES, M. D., and ALFRED POLAND. October, 1861.
- The Medical Critic and Psychological Journal. Edited by FORBES WINSLOW, M. D. October, 1861.
- Edinburgh Medical Journal. September, October, November, 1861.
- The Madras Quarterly Journal of Medical Science. July, 1861.
- British Medical Journal. August, September, October, November, 1861.
- The British American Journal. Edited by ARCHIBALD HALL, M. D. October, November, December, 1861.
- London Medical Review. September, October, November, 1861.
- The Dublin Quarterly Journal of Medical Science. November, 1861.
- The Royal London Ophthalmic Hospital Reports and Journal of Ophthalmic Medicine and Surgery. October, 1861.
- The American Journal of Insanity. Edited by the Medical Officers of the New York State Lunatic Asylum. October, 1861.
- Boston Medical and Surgical Journal. Edited by F. E. OLIVER, M. D., and S. L. ABBOT, M. D. October, November, December, 1861.
- North American Medico-Chirurgical Review. Edited by S. D. GROSS, M. D., T. G. RICHARDSON, M. D., and S. W. GROSS, M. D. November, 1861.
- The Cincinnati Lancet and Observer. Edited by Drs. E. R. STEVENS, J. A. MURPHY, and G. C. E. WEBER. October, November, 1861.
- The Buffalo Medical and Surgical Journal and Reporter. Edited by J. F. MINER, M. D. October, November, December, 1861.
- The Medical and Surgical Reporter. Edited by S. W. BUTLER, M. D., and R. J. LEVIE, M. D. October, November, December, 1861.
- American Medical Monthly. Edited by J. H. DOUGLAS, M. D. October, November, 1861.
- The Pacific Medical and Surgical Journal. Edited by DAVID WOOSTER, M. D. August, September, 1861.
- The Berkshire Medical Journal. Edited by WM. HENRY THAYER, M. D., and R. CRESSON STILES, M. D. October, November, December, 1861.
- The Chicago Medical Examiner. Edited by N. S. DAVIS, M. D., and F. W. REILLY, M. D. October, November, 1861.
- Cleveland Medical Gazette. Edited by Drs. WEBER, STEVENS, and MURPHY. November, 1861.
- The St. Louis Medical and Surgical Journal. Edited by M. L. LINTON, M. D., and W. M. MCPHEETERS, M. D. November, 1861.
- The Chicago Medical Journal. Edited by Drs. D. BRAINARD and J. A. ALLEN. October, November, 1861.

The Cincinnati Medical and Surgical News. Edited by A. H. BAKER, M. D., and J. A. THATCHER, M. D. August, November, 1861.

American Journal of Pharmacy. Published by the Philadelphia College of Pharmacy. Edited by WILLIAM PROCTER, M. D., Professor of Pharmacy in the Philadelphia College of Pharmacy. November, 1861.

American Druggists' Circular and Chemical Gazette. October, November, December, 1861.

The American Journal of Science and Arts. Edited by Profs. B. SILLIMAN, B. SILLIMAN, JR., and J. D. DANA. November, 1861.

The Dental Cosmos. Edited by J. D. WHITE, M. D., J. H. McQUELLEN, D. D. S., and GEO. J. ZIEGLER, M. D. November, December, 1861.

The New York Dental Journal. Edited by W. B. ROBERTS and F. H. NORRIS. October, 1861.

Transactions of the Medical Society of New Jersey, 1861. Ninety-Fifth Annual Meeting. New York, 1861.

Proceedings of the Academy of Natural Sciences of Philadelphia. June, July, August, September, October, 1861.

Quarterly Summary of the Transactions of the College of Physicians of Philadelphia, from March 7, 1860, to June 5, 1861, inclusive. Philadelphia, 1861.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Messrs. Trübner & Co., Booksellers, No. 60 Paternoster Row, London, E. C.; or M. Hector Bossange, Lib. quai Voltaire, No. 11, Paris, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

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 The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

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- XII. On Food and its Digestion: being an Introduction to Dietetics. By William Brinton, M. D., F. R. C. P.; Physician to St. Thomas's Hospital, and Lecturer on Physiology in that Institution. With forty-eight engravings on wood. London, 1861: Longman, Green, Longman & Roberts. 8vo. pp. 485. 115
- XIII. The History of Medicine; Comprising a Narrative of its Progress from the Earliest Ages to the Present Time, and of the Delusions incidental to its advance from Empiricism to the dignity of a Science. By Edward Meryon, M. D., F. G. S., Fellow of the Royal College of Physicians of England, late Lecturer on Comparative Anatomy at St. Thomas's Hospital, &c. &c. Volume I. London, 1861. 8vo. pp. 483. 129

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- XIV. Transactions of State Medical Societies:—
1. Tenth Annual Meeting of the Illinois State Medical Society, held in Paris, May 8 and 9, 1860. 8vo. pp. 226. Chicago, 1860.
 2. Transactions of the State Medical Society of Indiana, at its Twelfth Annual Session, held in the City of Indianapolis, May 21 and 22, 1861. 8vo. pp. 56. Indianapolis, 1861.
 3. Transactions of the Medical Society of New Jersey, 1861. Ninety-fifth Annual Meeting. 8vo. pp. 115. New York, 1861. 141
- XV. Reports of American Institutions for the Insane.
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 2. Of the Vermont Asylum, for the fiscal year 1859-60.
 3. Of the McLean Asylum, for the year 1860.
 4. Of the State Lunatic Hospital, Worcester, Mass., for the fiscal year 1859-60.
 5. Of the Retreat, at Hartford, Conn., for the fiscal year 1860-61.
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- XVII. Placenta Prævia; its History and Treatment. By William Read, M. D., etc. etc. 8vo. pp. 340. Philadelphia, 1861: J. B. Lippincott & Co. 161
- XVIII. Guy's Hospital Reports. Edited by Samuel Wilks, M. D., and Alfred Poland. Third Series, Vol. VII. London: John Churchill, 1861. 8vo. pp. 392. 167
- XIX. Annuaire Thérapeutique, de Matière Médicale, de Pharmacie et de Toxicologie, pour 1861. Par A. Bouchardat. Supplément à l'Annuaire de Thérapeutique, &c., pour 1861. Paris. 176

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- XXIV. Lectures on the Diseases of Women. By Charles West, M.D., etc. etc. Second American from the Second London Edition. Philadelphia: Blanchard & Lea, 1861. 8vo. pp. 483. 201
- XXV. The Diseases of the Prostate; their Pathology and Treatment. Comprising the second edition of "The Enlarged Prostate," and a dissertation "On the Healthy and Morbid Anatomy of the Prostate Gland," to which the Jacksonian prize, for the year 1860, was awarded by the Royal College of Surgeons of England. By Henry Thompson, F.R.C.S., &c. &c. London: John Churchill, 1861. 8vo. pp. 364. 205
- XXVI. The Placenta, the Organic Nervous System, the Blood, the Oxygen, and the Animal Nervous System, Physiologically Examined. By John O'Reilly, M.D., etc. 8vo. pp. 204. New York and London, 1861. 206
- XXVII. The True Physician. An Anniversary Discourse delivered before the New York Academy of Medicine, November 7, 1860. By John Watson, M.D., President of the Academy. New York, 1860. 8vo. pp. 44.
- Address delivered at the Opening of the New Clinical Lecture-Room of the Philadelphia Hospital. By Dr. J. L. Ludlow, one of the Medical Board and Lecturer on Clinical Medicine. Philadelphia, 1861. 8vo. pp. 26. 207
- XXVIII. An Effort to shorten the Duration and diminish the Pain of the First Stage of Labour; with a Record of One Hundred and Forty-seven Cases. By B. Fordyce Barker, M.D., Obstetric Physician to Bellevue Hospital. New York, 1861. 8vo. pp. 11.
- On the Use of Anæsthetics in Midwifery. By B. Fordyce Barker, M.D., Professor of Midwifery and Diseases of Women in the Bellevue Hospital Medical College, etc. New York, 1861. 8vo. pp. 17. 209

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FOR JANUARY 1862.

ART. I.—*Statistical Researches relative to the Seat, Symptoms, Pathological Anatomy, Prognosis, Treatment, &c., of Intussusception in Children.* By J. LEWIS SMITH, M. D., Curator to the Child's Hospital, New York.

INTUSSUSCEPTION, or the passage of one portion of the intestine into another, has been known as an occasional accident from the earliest history of medicine. Hippocrates himself, though debarred from the study of morbid anatomy, appears to have had a pretty clear idea of this lesion, and his practical mind suggested a mode of treatment which has not been improved upon to this day. Intussusception is sometimes trifling, attended by no symptoms, and disappearing on slight traction or motion of the bowels; at other times the symptoms are grave from the first, and if the patient survive, it is only through the tedious process of sloughing and adhesive inflammation. The following cases, of the severe form of intussusception, are all which I have been able to find in the American, British, and those continental periodicals to which I have access.

1. *Intussusception in the Small Intestines.*

CASE 1. Male, 12 years old, previously had pain in abdomen for two or three weeks. Symptoms, vomiting, thirst, constipation; a tube introduced per rectum met an obstruction at the distance of four inches; a hard mass detected below the arch of the colon on the left side; died the fifth day. Sec. Cadav. The upper twelve inches of the jejunum invaginated in the next twelve inches below; the whole mass firm, two inches in diameter, and its serous surfaces united by adhesions; no general peritonitis; lower end of the volvulus forced down into the pelvis, completely closing the sigmoid flexure and the rectum; two smaller simple intussusceptions were present in the small intestines. M. R. TREVOR, *Amer. Journ. Med. Sciences*, Jan. 1852, p. 277.

CASE 2. Male, 3 years old; previous health not stated. Symptoms, skin hot and dry, pulse full and frequent; tongue dry and furred; pupils dilated, pain in abdomen, spasms, opisthotonos; respiration hurried and laborious; died the second day. Sec. Cadav. At about the junction of the jejunum and ileum twenty-six inches of the intestine had been received into about six inches; these parts presented a slight blush of inflammation; immediately below the invagination the ileum was much inflamed, containing numerous lumbrici. ISAAC THOMAS, M. D., *Amer. Med. Recorder*, 1823, p. 285.

2. *Intussusception of Ileum into the Colon.*

CASE 3. Had previously suffered from constipation, followed by diarrhœa and convulsions. Symptoms, obstinate constipation, vomiting, tenderness in the left iliac region; little or no distension of abdomen; died on the fifth day. Sec. Cadav. "About two inches of the ileum were found projecting into the cœcum, in which it was firmly fixed." Dr. MAYNE, Path. Soc. of Dublin, March 16, 1839. *Dublin Journ. of Med. Sciences*, Jan. 1840.

CASE 4. Male, 2 years old; previously well. Symptoms, vomiting, abdominal pain, constipation; died in convulsions at the close of the second day. Sec. Cadav. Small intestines distended with flatus, and pale to within four inches of the colon, where the colour changed to dark red. Within the colon, close to the ileo-cæcal valve, a soft, solid body, about the size of a fowl's egg, was felt. This proved to consist of the terminal portion of the ileum, inverted to the extent of about three inches deeply plicated, and in a high state of sanguineous congestion. A little bloody mucus was found in the colon. Dr. COGGSWELL, Med. Society of London. *Lancet*, July, 1853.

CASE 5. Female, 4 years old; previously in robust health, excepting a slight tendency to diarrhœa. Symptoms, vomiting, thirst, pain and swelling of abdomen; countenance anxious; tongue moist, and slightly furred; surface hot; at first, jelly-like motions mixed with blood; near the close of life, scanty liquid motions, not tinged with blood; died quietly on the tenth day. Sec. Cadav. Intestines distended; no lymph in abdominal cavity; the cœcum distended and hard, and on opening it, the interior was found occupied by thirteen inches of the ileum doubled on itself. "This had descended through the ulcerated ileo-cæcal valve," and was dark red and swollen; numerous ulcers were observed in the small intestines, chiefly in the ileum, corresponding with Peyer's patches, but some in the jejunum; the invaginated intestine had become partially pervious, as was shown by the diarrhœa. Mr. FILLITER, *London Lancet*, May, 1855.

CASE 6. Male, 3 years old; previous condition not given. Symptoms, one free motion, then constipation, vomiting, especially after the third day; stercoraceous on the sixth day; thirst, quick, feeble pulse, pale countenance, tenesmus; no hardness of abdomen, but meteorism towards the close; no marked tenderness on pressure; died exhausted after seven days. Sec. Cadav. Small intestines distended with flatus, but free from feculent matter; at least a foot of the ileum had passed through the ileo-cæcal valve; the peritoneum was in the natural state, and no lymph or fluid was observed; large intestines contracted and empty. Mr. NUNNELY, Path. Soc. London, March 20, 1860. *Med. Times and Gaz.*, April 28, 1860.

CASE 7. Male, 4 months old; previously healthy. Symptoms, vomiting, constipation, passed a small quantity of blood and mucus, with much tenesmus; in three days the action of the bowels was restored, and these

symptoms subsided. Three weeks subsequently, the symptoms returned, and again, after three days, an evacuation was obtained, and the vomiting abated. The bowels now remained open, but there was severe tenesmus, and twenty-seven days after the commencement of this last attack, a portion of the bowel protruded from the anus, measuring finally six inches. This became partially gangrenous, but he lived seventeen days longer, or six weeks from the commencement of the last attack. Sec. Cadav. Intussuscepted part consisted of the ileum, which had been protruded through the entire colon; this was shown to be pervious by the probe, and in it was a small quantity of yellow, feculent matter; the invaginated portion at about its middle, was gangrenous to the extent of one and a half inches. SYDNEY JONES, London Path. Soc. *Lancet*, April, 1857.

CASE 8. Male, 6 months old; previously healthy. Symptoms, thin fecal and bloody dejections, restlessness, nausea, no real tenesmus, but an "incomplete, abruptly-ending strain;" no marked heat, tenderness, or fulness of abdomen; died the third day. Sec. Cadav. The ileum had passed through the cæcum and into the ascending colon; it was congested, but was drawn out with little effort, and was not strangulated; Peyer's patches were much developed, softened, and containing red points; there was lymph on the surface, and the passage was still open through the intussusception. Dr. COTTING, Roxbury. Boston Soc. for Med. Improvement, July, 1852.

CASE 9. Male, 4 years and 9 months old; at the age of six months had inflammation of the lungs, and had been subject to a cough since; from the age of eighteen months had been troubled with ascarides; the day before the attack complained of soreness about the anus, and ascarides were found on examination. Symptoms, great pain in lower part of abdomen; tenesmus; passed at first one or two fecal masses, and then clots of blood and mucus; thirst, vomiting, countenance anxious; abdomen finally tympanitic and tender; died the fifth day. Sec. Cadav. The ileum had protruded through the ileo-cæcal valve to the extent of three and a half inches, or seven inches in entire length, and its mucous surface contained shreds of lymph; stomach and ascending colon distended with gas, and the latter displaced so as to occupy nearly the place of the transverse portion; no lymph and scarcely any effusion in the peritoneal cavity; intussuscepted portion firmly fixed and swollen, and of a deep red colour, while the colon generally was pale; at the middle of the ileum a slight intussusception; solitary glands and those of Peyer diseased in the ileum. Dr. HARE, Lond. Path. Soc., Oct. 16, 1848.

3. *Invagination of the Cæcum—Cæcum and Ileum; or Cæcum, Ileum, and Colon.*

CASE 10. Male, aged 5 months; previously healthy. Symptoms, constipation, vomiting, dejections of blood and mucus; hiccup the last three days; a tumour on left side of abdomen the size of an egg; died the fifth day. Sec. Cadav. Six inches of the ileum and the ascending and transverse colon were invaginated in the sigmoid flexure and the rectum; intussuscepted portion black; ten or twelve inches of the ileum above the intussusception inflamed slightly; other organs healthy. THOMAS BLIZARD, *Med. Chir. Trans.*, vol. i. p. 169.

CASE 11. Age 4 months; during the first eight or ten weeks of its life was sickly, having, according to the mother, at one time symptoms similar to those with which it died, but since the age of ten weeks, appeared per-

feetly well. Symptoms, frequent and abundant dejections of blood, which, near the close of life, was fetid, and of a dark brown; vomiting of greenish-yellow matter, slightly mixed with blood; no fecal stools; face pallid; pulse frequent; abdomen distended and tender; occasionally violent screaming, and in the interval no appearance of suffering; lived more than a week. See. Cadav. Stomach healthy, excepting a few vascular streaks; small intestines much distended; a small portion of the ileum and the entire colon to the sigmoid flexure, imbedded in the latter, and gangrenous; adhesions and coagula in the mass; rectum contracted. ALFRED MARKWICK, *Lancet*, 1846.

CASE 12. Male, 1 year old; had diarrhœa previously. Symptoms, paroxysms of intense pain; vomiting at first, then stomach retentive; one dejection, then obstinate constipation; motions of mucus and blood; emaciated; collapse and death on the seventh day. See. Cadav. A portion of the ileum and cecum were invaginated in the ascending and transverse colon; descending colon contracted; the invaginated intestine extremely congested and swollen, and containing two orifices, one leading to the ileo-cæcal valve; the other to the appendix vermiformis. Dr. O'FERRALL, Path. Soc. Dublin. *Lond. Med. Times*, Jan. 16, 1847.

CASE 13. 6 months old; bowels previously irregular. Symptoms, paroxysms of pain; motions of blood and mucus; vomiting; face pallid; left side of abdomen hard and prominent; died the third day exhausted. See. Cadav. Intestines inflated with gas; a few ounces of brownish serum in the abdominal cavity; several inches of the ileum, the cæcum, the appendix vermiformis, the ascending and a portion of the transverse colon, were "protruded into the remainder of the transverse and the descending colon;" the incarcerated portion engorged and covered with ash-coloured lymph; traces of peritonitis at the strangulation; a slight doubling in of the rectum had also occurred. CHAS. CLARK, *Lancet*, Aug. 18, 1849.

CASE 14. 4 months old; previously healthy. Symptoms, paroxysms of pain; one dejection from oil, then scanty passages of blood; vomiting, but not at first; prostration; no tenderness or distension of abdomen at first; finally distension; died exhausted on the third day; the invaginated intestine could be felt by examination per anum. See. Cadav. Six ounces of clear serum in the abdominal cavity; no lymph on the peritoneum; much flatus in the intestines; stomach, duodenum, and jejunum healthy; five points of intussusception in the upper part of the ileum, easily drawn out; the lower third of the ileum, the cæcum, ascending and greater part of the transverse colon, were imbedded in the descending portion; the invaginated portion partly gangrenous. E. Y. STEELE, *Lancet*, June 23, 1849.

CASE 15. Male, 4 months old; unwell for two days previously. Symptoms, vomiting; one pretty copious sanguineous stool, then constipation; paroxysms of pain; tympanites; anxious countenance; died exhausted on the third day. See. Cadav. Intestines distended with flatus; coagulated blood in the sigmoid flexure; cæcum and ascending colon invaginated in the transverse and descending portions, and of a deep purple with ash-coloured patches of gangrene. P. P. NIND, *Lancet*, June 23, 1849.

CASE 16. Male, 20 months old; previous condition not stated. Symptoms, severe pain in abdomen; no tenderness; a tumour distinctly felt on the second day in the right iliac region; vomiting; constipation; no tenesmus, and no discharge of bloody mucus from the bowels; abdomen not distended; died on the fourth day. See. Cadav. Six or seven inches of the lower portion of the ileum, the cæcum, and the ascending colon were filled

with inverted intestine; the six or seven inches of the ileum were puckered so as to measure only one inch, and this part of the ileum had formed a second invagination in the cæcum to the extent of two inches; the incarcerated intestine was in a state of gangrene; colon, below the intussusception, healthy, but contracted. Mr. TAYLOR, *Lancet*, 1843.

CASE 17. 4 years old; previous condition not stated. Symptoms, vomiting; evacuations of blood and mucus; lived three days. Sec. Cadav. The lower part of the ileum, the cæcum, and the colon, were all invaginated in the rectum; adhesions in the lower part of the mass, but not in the upper. W. S. PARTRIDGE, *Prov. Med. and Surg. Jour.*, May 3, 1848.

CASE 18. Female, 5 months old; previous condition not stated. Symptoms, restlessness; little fever at first; vomiting; constipation; tenesmus; the intestine protruded an inch below the anus by straining. Sec. Cadav. About one inch of the ileum, the caput coli, and the colon as far as the left hypochondriac region, were lodged in the remaining portion of the colon and the rectum; the cæcum and the colon were inverted, the former being the part which protruded from the anus; the cæcum was thickened from inflammation, and with a part of the colon was gangrenous. R. HARRLAN, M. D., F.R.S., *Med. and Phys. Researches*, page 565. Philadelphia, 1835.

CASE 19. Female, 6 years old; previous condition not given. Symptoms, having eaten raw carrots was seized with pain which continued more or less for eight months, when she died; the stools during this period numbered about three daily, and were thin, and during the last three months were mixed with mucus and blood. Sec. Cadav. The caput coli and the first half of the colon had descended through the other half and the rectum; the lower part of the ileum was "drawn down through the centre of the intussusception to the anus." Mr. DAVIES, *Med. Repos.*, Dec. 1824, and *Medico-Chir. Rev.*, 1825.

CASE 20. Male, 9 months old; previously well, except a tendency to relaxation of the bowels. Symptoms, severe paroxysms of pain, but quiet in the interval; vomiting; no fecal stool, but scanty motions of blood and mucus; tenesmus; abdomen distended towards the close of life, but not tender; little or no emaciation; died the third day. Sec. Cadav. Small intestines distended with flatus; a considerable portion of the ileum and the caput coli had been forced up the ascending colon, across the transverse, and low down into the rectum; incarcerated portion of a dark colour and the mucous membrane softened, swollen, and engorged with grumous blood; the remainder of the small intestines and the stomach healthy. H. CUNNINGHAM. *Lond. Med. Gaz.*, Sept. 15, 1838.

CASE 21. Male, 4 months old; previous condition not given. Symptoms, had one abundant fecal evacuation, and then obstinate constipation; passed mucus and blood; tenesmus; cried much from pain; died the fourth day. Sec. Cadav. The lower portion of the ileum, the caput coli, the ascending, and a part of the transverse colon, were invaginated in the remaining portion of the colon and the rectum. The incarcerated intestine was tumefied and thickened. ALEXANDER MONRO, *Path. Anat. of the Alimentary Canal*.

CASE 22. 4 months old; previously well. Symptoms, great abdominal pain; two bloody evacuations; died the third day. Sec. Cadav. Small intestines much distended with fluid and flatus; descending colon, blanched and empty; the cæcum and the ascending colon were lodged in the transverse and beginning of the descending portions; the vermiform appendix partially drawn in, protruded from the mass; in the interior was found a

second invagination, that of the ileum, so that there were in some places seven (five?) layers. "This invaginated portion from beginning to end looked like a dark and firm clot of blood. This was owing to the structure of the intestine, being broken up, congested, and infiltrated with blood." Dr. RYAN, Med. Soc. of London, Oct. 27, 1835. *Med. Times and Gaz.*, Nov. 3, 1835.

CASE 23. 4 months old; previously well. Symptoms, occasional vomiting; feculent dejections, mixed with blood; pulse small and rapid; died on the second day. Sec. Cadav. A part of the ileum, the cæcum, and a considerable portion of the colon were invaginated; no peritonitis. Dr. EVORY KENNEDY, Path. Soc. of Dublin. *Dublin Journal of Med. Sciences*, March 1, 1844.

CASE 24. Female, 7 months old; previously well. Symptoms, vomiting; one scanty dejection of yellow matter mixed with mucus; pallor; no distension of abdomen; pulse feeble; pupils contracted; died the third day in collapse. Sec. Cadav. A portion of the ileum and the cæcum had descended through the colon and rectum, to within half an inch of the anus, doubling the colon on itself; the lowest portion of the volvulus was the cæcum, and the ileum had not passed through the ileo-cæcal valve; invaginated portion of a dark colour, and the lower end sloughy; a slight deposit of lymph on the adjacent serous surfaces. Dr. BUCHANAN, London Path. Society, May 3, 1859.

CASE 25. Female, 6 months old; previously well. Symptoms, vomiting, tenesmus, and pain in abdomen; pallid countenance; evacuation of blood-stained fluid, but no feces; died the fifth day. Sec. Cadav. A few drachms of brownish serum, in the peritoneum; small intestines distended and congested; a part of the ileum, and the whole upper portion of the large intestines, were invaginated in the descending colon and the rectum, to within two inches of the anus, and were very dark; the descending colon and the rectum were much puckered. Mr. BALLARD, London Path. Society, Jan. 6, 1857.

CASE 26. 3 months old; previously healthy. Symptoms, convulsions at first; vomiting; one healthy evacuation, then bloody stools with straining; abdomen not hot or tender; skin cool; countenance of distress; died the third day. Sec. Cadav. Stomach empty and collapsed; ileum distended with air and feces; a part of the ileum, the cæcum, ascending and transverse colon, were lodged in the descending colon, as far as the sigmoid flexure, and were deeply congested, having patches of extravasated blood. J. W. PERRIN, *Lancet*, March 26th, 1853.

CASE 27. 3 months old; previous condition not given. Symptoms, vomiting, abdomen tender; severe paroxysms of pain; one fecal evacuation, and afterward, stools of blood only; died the first day. Sec. Cadav. Stomach and small intestines distended with gas; a large part of the ileum, the cæcum, the ascending and the transverse colon, dark and almost gangrenous, were invaginated in the descending portion; the volvulus extended six inches below the sigmoid flexure; no fibrinous exudation. M. JUDSON, *Gaz. Méd. de Paris*, Dec. 1837.

CASE 28. $3\frac{1}{2}$ years old; previous condition not stated. Symptoms, almost constant pain in the bowels for three months; vomiting; during the last four days of his life, a portion of intestine protruded from the anus. Sec. Cadav. The cæcum and the entire colon, to within eleven inches of the anus, were invaginated in the remainder of the colon and the rectum, and

protruding five or six inches beyond the anus; the parts were united by strong adhesions. M. ROBIN, *Mém. de l'Acad. Roy. de Chirurg.*, 1784.

CASE 29. 4 years old; had previously an attack of dysentery. Symptoms, vomiting, fever, tenesmus, with intervals of relief; emaciation; died after sickness of nearly a month. Sec. Cadav. Half an ounce of thin pus in abdomen; the caput coli, ascending and transverse colon, were found in the sigmoid flexure and rectum, nearly reaching to the anus; the ileum extended uninverted through the entire invagination; the inclosed colon was very vascular, and for three inches gangrenous; the ileum, above the invagination, was much distended. JOHN C. LETTSOM, M. D., F. R. S.

CASE 30. 9 months old; previously delicate, but free from disease. Symptoms, convulsions, vomiting, pain; anus patulous, and a tumour visible within; died in collapse, the beginning of the second day. Sec. Cadav. Six inches of the ileum, the cæcum, ascending and transverse colon, lay within the descending colon, sigmoid flexure, and rectum. Mr. YOUNG, Reading Path. Soc. *British Med. Journal*, Sept. 24, 1859.

CASE 31. 11½ months old; previous history not given. Symptoms, screaming, restlessness; scanty evacuations of blood and mucus; vomiting, tenesmus; at first no abdominal tenderness, then slight tenderness and distension; urine freely passed; rapid emaciation and collapse; death on the third day. Sec. Cadav. A slight exudation of serum, and blood in abdomen; about four inches of the ileum, the cæcum, the ascending and transverse colon, were invaginated in the descending colon, to near the sigmoid flexure; the included intestine was of a dark colour, and covered by mucus, but not inflamed. Mr. CLARKE, Westminster Med. Soc. *Lancet*, Feb. 17, 1838.

CASE 32. 6 months old; previous condition not given. Symptoms, obstinate constipation, vomiting, evacuations of blood and mucus; died the third day. Sec. Cadav. The cæcum, ascending and transverse portions of the colon, were invaginated in the descending portion, and their mucous membrane of a purple colour from strangulation. E. SMITH, London Path. Society, Dec. 4, 1848.

CASE 33. 4 months old; previously well. Symptoms, vomiting; scanty stools of pure blood; paroxysms of pain; pupils dilated; pulse 200 per minute; abdomen soft; skin hot and pallid; injections returned as fast as given; died, in convulsions, nineteen hours after the commencement of the disease. Sec. Cadav. Four simple intussusceptions in the small intestines easily reduced; lower portion of the ileum of a deep-red colour, and intussuscepted within the ascending colon, which latter was also swallowed within the transverse arch; appendix vermiformis highly injected; mucous membrane of the inflected ascending colon beautifully injected; that of the invaginated ileum intensely red; stomach and intestines above the intussusception healthy; the colon below, as well as that containing the invaginated fold, was of a dark-blue colour. Mr. GORHAM, *Guy's Hospital Reports*, Oct. 1838.

CASE 34. Male, aged 3 months and 4 days; previously well. Symptoms, constipation, scanty stools of mucus and blood; vomiting; pulse accelerated, and respiration slightly so; distension in the right iliac region; a portion of the ileum protruded from the anus twelve hours before death; died on the eighth day. Sec. Cadav. Twelve inches of the ileum doubled on itself, had descended the whole length of the colon, drawing the caput coli within the ascending colon; the appendix vermiformis protruded from

the end of the mass; colon contracted within the space of six inches. J. LEWIS SMITH, M. D., N. Y. Path. Soc., June, 1861.

CASE 35. Male, 3 years 4 months old; body much contused, two years previously, by an accident in the street; from this period, frequently complained of pain in the abdomen, in the vicinity of the injury; about the first of November, 1847, the pain became more severe, and he occasionally vomited; about the close of the year Dr. W. was consulted, but treatment gave no relief; six weeks before death the bowels became loose; dejections contained blood and mucus; tenesmus; two lumbrici passed; some severe pain; the bowel was frequently protruding, but replaced by the mother; great emaciation; death occurred July 10th, 1848. Sec. Cadav. Greater omentum showing traces of inflammation; stomach and upper part of small intestines healthy; intestines empty; no lumbrici found; the cæcum was inverted, and had descended through the colon, to the lower portion of the rectum, carrying with it the ileum and the entire colon, except the last ten or twelve inches; there were two feet of inverted intestine; the mass was inflamed, and the cæcum and colon, in particular, approached the gangrenous state. WILMER WORTHINGTON, M. D., *Amer. Journal Med. Sciences*, Jan. 1849, p. 97.

CASE 36. 10 months old; previously well, but liable to constipation. Symptoms, screamed violently from pain; fainted; two evacuations fecal, with mucus and blood, then a large dejection of blood and mucus; tenesmus constant; surface pallid, and of a blue tinge; lived forty-eight hours; parents state that they lost another child, of the same disease, at the same age. Sec. Cadav. "A double intussusception of the large intestine was found; the cæcum, with the inferior portion of the ascending colon, had been drawn into the upper part of the ascending colon, and this last, with its contents, had been drawn into the transverse colon, which was *in situ*; the invaginated portions were not confined by lymph. There was a sparing deposit of lymph on the peritoneal surface of the ascending colon." Dr. BLAKE, Birmingham Path. Society. *Proc. Med. and Surg. Journal*, May 3, 1848.

CASE 37. Female, 11 years old; previous condition not given. Symptoms, thirst, quick pulse; a sense of oppression and pain in the bowels; vomiting, finally stercoraceous; constipation; the countenance became ghastly, and death appeared imminent. On the evening of the sixth day, the cæcum, with a portion of the colon with the meso-colon attached, measuring thirteen and three-fourth inches, was passed from the bowels, with six quarts of black and fetid feculent matter, when she immediately began to improve, and her health was finally entirely restored. J. W. BOWMAN, *Edinburgh Med. and Surg. Journal*, Oct. 1813.

CASE 38. Male, 6 years old; health previously good, except that on the day preceding the attack, the calves of the legs were swollen, mottled, and tender. Symptoms, vomiting till the fifth or sixth day, constipation, tenderness and pain in the right iliac region; on the sixth day had severe general convulsions, which recurred at intervals for twenty-four hours, when they subsided, and he became conscious; the pain continued in the right iliac region, and he passed a little blood; on the eleventh day, he voided, in his sleep, the cæcum, vermiform process, and a part of the colon, and from this time the abdominal disease subsided; two days subsequently, his left leg became cold and pulseless, and finally, all that portion below the patella became gangrenous. He eventually recovered, with the loss of the leg. CHARLES KING, *Lancet*, 1854.

CASE 39. Male, 4 months old; previously in excellent health. Symptoms, vomiting; uttered at intervals sharp cries; had one or two fecal dejections, and then stools of blood; eyes injected; surface hot; pulse at first 140, and finally frequent and feeble; a canula introduced into the rectum met an obstruction five or six inches above the anus, and a hard elongated tumour was felt in the left iliac fossa; died exhausted on the third day. Sec. Cadav. No marked emaciation; serum in the abdominal cavity not abundant; the cæcum and appendix vermiformis had traversed the transverse arc of the colon, and descended nearly to the rectum; the invaginated portion of intestine resembled a large sanguineous clot, it was so impregnated with blood; it had at first a very dark-red colour. Dr. PENQUIER, of Brest, *L'Union Médicale*, Paris, Aug. 22, 1861.

CASE 40. Male, 5 years old; was ill four months with symptoms, at first those of fever; complained of pain in the region of the bladder, but had no abdominal tenderness; pain somewhat relieved by pressure; bowels rather constipated but no dejection of blood; urine sometimes scanty, sometimes copious; pulse frequent. Finally he passed by stool eight inches of the ileum, the cæcum and appendix vermiformis, and four inches of the colon, dark and offensive; the evacuation of this was preceded and followed by diarrhœa. From this time his health was fully restored. Dr. QUAIN, Lond. Path. Soc., Aug. 16, 1859.

CASE 41. Previously well. Symptoms, constipation, paroxysms of pain; no abdominal tenderness; occasional tenesmus; a cylindrical tumour in the left iliac region. Died the beginning of the third day. Sec. Cadav. The upper part of the descending colon had descended into the inferior portion to the extent of two inches. Dr. MONTGOMERY, Dub. Path. Soc. *Lond. Med. Times*, Dec. 23, 1848.

CASE 42. Male, 6 months old; had slight diarrhœa for two or three days previously. Symptoms, tenesmus, bloody stools. Autopsy. Intussusception in the transverse colon to the extent of two or three inches; a considerable part of which was gangrenous. E. Y. STEELE, *Lancet*, June 23, 1849.

CASE 43. Female, 4 months old; had nausea and vomiting for three weeks previously. Symptoms, restlessness, tenesmus, paroxysms of intense pain, vomiting, mucœ-sanguineous stools. Died after six days. Sec. Cadav. Small intestines inflamed in places; the lower portion of the colon, and the upper portion of the rectum, had descended into the lower portion of the gut; the inverted extremity of the intestine was of a dark-grumous colour, being covered with blood and mucus. Mr. HOWSHIP, *Edinb. Med. Journ.*, April, 1812.

4. Uncertain.

CASE 44. Female, 4 months old; had disordered bowels from birth. Symptoms, vomiting, paroxysms of pain, constipation, a tumour in the left iliac region; abdominal tenderness towards the close. Died exhausted on the sixth day. Sec. Cadav. An intussusception was found in the left iliac region. H. F. CARTER, *Lancet*, June 2, 1849.

CASE 45. Male, 6 years old; previous condition not stated. Symptoms, pain in the bowels, fever, stercoraceous vomiting; tongue covered with a dark fur; prostration; constipation at first, but in four or five days he had a dark-coloured evacuation followed by alleviation of the symptoms, and soon after complete relief; the bowels acted regularly, the fever abated, and the appetite returned; on the third day subsequently a portion of the bowel protruded from the anus, and on the fourth day this was discharged,

measuring twenty-three inches in length. After this he continued several weeks emaciated, his digestion imperfect, and stools, which were obtained with difficulty, resembling "the fermenting wash in a distillery." The abdominal pain, which at first was pretty constant, finally became paroxysmal, like the pains of labour; but this at length subsided, and his health was subsequently tolerably good, except that he was subject to colic and irregularity of the bowels. LEVI GAYLORD, *Amer. Journ. of Med. Sciences*, Oct. 1827.

CASE 46. Male, 12 years old; previous condition not given. Symptoms, tongue furred; vomiting; abdominal pain; pulse corded and frequent. On the fourth day a free feculent evacuation took place, mixed with blood, and the symptoms immediately improved. On the eighth day, fifteen to eighteen inches of the ileum were passed in a stool, after which he rapidly recovered, except that the bowels continued rather relaxed; and for three or four weeks he could not stand erect without pain. Twelve weeks after his recovery he was seized with typhous fever, of which he died in two weeks. Sec. Cadav. The traces of the diseased bowels were visible, by a considerable puckering and contraction, where the slough had taken place and the parts united, yet there appeared to be sufficient room for the feces to pass; and, but for the febrile attack, he might have enjoyed ordinary health. F. BUSH, *Lond. Med. and Phys. Journ.*, Dec. 1823.

CASE 47. Female, 12 years old. When two years old had symptoms of marasmus, and was delicate for three or four years. Since this has had occasionally purging and severe pain in the bowels. Symptoms, severe vomiting; pain in the right side a little below the ribs; and a tumour the size of a goose's egg at the point tender to the touch. On the twelfth day of the physician's attendance, a portion of the ileum, twelve inches long, was passed; the stereoraceous vomiting and the pain and distension of the abdomen continued about nine days longer, after which she gradually improved, and a month later was reported to be in better health than before the attack. JOHN LANG, *Lancet*, Oct. 1855.

CASE 48. Symptoms, vomiting, pain in abdomen; muco-sanguineous evacuations; tenesmus; fever; a tumour detected by examination per rectum, two or three inches from the anus. Sec. Cadav. An invagination of intestine was found in the rectum. Dr. JACOBI, New York Path. Soc., Aug. 8, 1861.

CASE 49. Female, 9 years old; previously had dysentery. Symptoms, vomiting and great prostration at first; on the fifth day a large quantity of bloody serum was passed by the stools, but no feces; on the seventh day, and occasionally to the twelfth, there were small feculent discharges; great distension of abdomen; enlargement of the cutaneous veins, as if the vena cava were obliterated by pressure; on the twelfth day a portion of intestine still invaginated, measuring ten inches, was evacuated from the bowels. Dr. PATTERSON, Medico-Chirurg. Soc. Edinb. *Month. Journ. Med. Sci.*, March, 1854.

CASE 50. Male, 8 months old; previously well; had tenesmus and stools of blood; no vomiting and no tenderness; died exhausted on the second day; intestine protruded. E. Y. STEELE, *Lancet*, June 23, 1849.

Seat.—The small intestines are very liable to intussusception in the child, on account of their great mobility. Any irritant, mechanical or other, which disturbs the regular peristaltic movements, may produce it. Hence,

those accustomed to make *post-mortem* examinations of children, have noticed the invaginated knots along the jejunum and ileum in a variety of affections. Hevin, referring evidently to this simple invagination, states that he has seen it, at the Salpêtrière, over three hundred times. Billard has seen it, especially in children who have been subject to constipation. It has been noticed after death from acute hydrocephalus, and from spasmodic diseases. I have not infrequently seen it, at the Child's Hospital, in infants who have died of the summer complaint. Sometimes, this invagination is thought to occur at the moment of dissolution. However produced, whether through irritating ingesta, or worms, or in *articulo mortis*, intussusception in the small intestines is very rarely so serious in the child as to constitute disease. Slight traction of the bowel reduces it, and it probably causes very little suffering. Rilliet, not considering this simple invagination a matter of any moment, states that intussusception never occurs in the small intestines of the infant. Invagination of the ileum in the colon, we shall see, is a frequent and very fatal form of intussusception in infancy; but, as regards the complaint seated in the small intestines—in other words, invagination of one portion of the small intestines into another—I have found no exception to Rilliet's remark. Cases have, indeed, been cited to prove its falsity; one, reported by M. Marage, in which the child survived after having voided thirteen inches of small intestine; but, from all that appears, this may have been that common form of invagination—the ileum into the colon. Another case has been cited by Bonchut, from Taylor, of a child twenty months old. I am not certain what case this is, but if it be No. 16 of our collection, as is probable, we see the invagination was really in the colon, although a small portion of the ileum had not been inverted, so that it formed about an inch of the exterior of the volvulus. If there are exceptions to Rilliet's statement, they are certainly very rare.

In children above the age of two years, fatal invagination in the small intestines may occur, though not frequently. Cases 1 and 2 prove this. There is no symptom which will enable us to distinguish, with certainty, intussusception in the small intestines from that in the colon. The main difference appears to be, severer pain and more constitutional disturbance, less tenesmus, and less abdominal distension. Case 1 teaches us how difficult it is, sometimes, to determine the exact seat of intussusception before death. An obstruction was discovered four inches above the anus, and yet the intussusception was in the upper part of the jejunum, the mass having been pressed down into the pelvis.

While we have found records of only two cases of intussusception in the small intestines, sufficient to constitute disease, in children under the age of twelve years, we have collected records of forty-one cases of this lesion in the colon, which resulted either in death, or in the destruction and loss of a portion of the intestine. Besides these, we have records of seven cases in which the location of the disease in the intestine was not precisely stated.

Age.—Of the fifty cases constituting the whole collection, the ages were as follows:—

3 were 3 months old	1 was 10 months old
11 " 4 "	1 " 11 "
2 " 5 "	1 " 12 "
5 " 6 "	2 were from 1 to 2 years old
1 was 7 "	8 " 2 " 5 "
1 " 8 "	8 " 5 " 15 "
3 were 9 "	3 not given

From these statistics, it appears that this complaint is rare under the age of three months, and that the period of greatest frequency is from the third to the sixth month, the maximum number being at the fourth month. There were twenty-one cases between the ages of three and six months inclusive, eight from six months to one year, and only eighteen between the ages of one year and twelve. *A posteriori* reasoning at once leads to the conclusion that there must be, in children under the age of one year, some anatomical peculiarity at the commencement of the large intestine which favors intussusception. Dr. Penquier, of Brest, who reported Case 39, attributes the frequency of intussusception during the first year of life to the relaxed state (*laxité*) of the colon, and the small calibre of the large intestine, conjoined with the violence and persistence of the infant's cries. Whatever the explanation, the fact is certain that intussusception is most frequent and fatal in the period mentioned. It is the province of the anatomist, rather than the practising physician, to discover the cause.

Sex.—In thirty-two cases in which the sex is given, twenty-two were males.

Previous condition.—In thirty-two cases, the condition of the patients previously to the invagination is given. Sixteen of these were, to all appearance, in perfect health, and of this number all but two were under the age of one year. Five under the age of one year had disordered bowels previously, either diarrhœa, constipation, diarrhœa alternating with constipation, or dysentery. Another child, four months old, was in infirm health till the age of ten weeks, having at one time symptoms of invagination; but, after the age of ten weeks, its health was good. Still another, also four months old, had nausea and vomiting three weeks before the invagination commenced. Of those above the age of one year, the previous condition is given in nine cases. Four of these are stated to have had dysentery or diarrhœa; one had pain in the abdomen for two or three weeks, one for two years from an injury; and one had ascarides, of which she complained the day before the attack, and a cough; while, as stated above, only two had previous good health. That ascarides may be an exciting cause of invagination, is evident from the experiments of Haller, who produced intussusception in the rabbit by pinching the rectum. It is an interesting fact, however, that in only three cases of the whole number were worms present;

in two, lumbrici. This shows that irritation from worms is rarely the exciting cause of intussusception. The above statistics, then, prove that, in infants under the age of one year, invagination usually occurs in a state of perfect health, although the exceptions are not infrequent; while, above that age, there is usually disorder or disease of the bowels.

Pathological anatomy.—The lower portion of the ileum, or the cæcum, is the part primarily invaginated in most cases of fatal or serious intussusception in the child. By referring to Cases 3 to 9, it will be seen that intussusception not infrequently begins in the prolapse of the ileum through the ileo-cæcal valve, in the same way that prolapse of the rectum occurs through the sphincter ani. If death take place early, as in Case 4, only a small portion of the ileum may have passed the valve. If the case is protracted the tenesmus brings down more and more of the ileum, with its accompanying mesentery. The constriction of the valve, which acts as a ligature, soon prevents the further descent of the ileum, and, the tenesmus continuing, the next step in the morbid process is the inversion of the caput coli, which is drawn into the colon by the descending mass; and, unless the case terminate by sloughing or death, the ascending and transverse portions of the colon are successively invaginated. The records show that intussusception occurs as above stated in a large proportion of cases. In one case, No. 16, the intussusception began a few inches above the valve, so that the ileum constituted a small portion of the exterior of the mass. Not infrequently, the cæcum is the part primarily inverted and invaginated, and, descending along the colon, it draws after it the ileum, which sustains its natural relation to the ileo-cæcal valve. When this occurs, the cæcum is found at the lower end of the mass, and two orifices are observed, one leading through the valve and the other into the appendix vermiformis. In Cases 12, 15, 18, 19, 24, and 35, the intussusception evidently commenced with the caput coli. These two forms of invagination—that in which the ileum, passing through the ileo-cæcal valve, successively inverts and draws after it the caput coli and the divisions of the colon; and that in which the caput coli is primarily invaginated, and, descending along the large intestine, inverts the latter and draws after it the ileum—constitute the vast majority of cases of this disease in childhood. In Cases 3 to 40, the parts invaginated were the ileum or caput coli, or both, generally with a portion of the colon. In one case, 42, the intussusception was in the transverse colon; in one, 41, in the descending portion; and in one, 43, in the lower portion of the descending colon and in the rectum. In a few instances (22, 33, and 36) double invagination occurs. The first invagination becomes arrested in its progress, and, by the strong expulsive efforts of the child, the whole mass descends into the portion of intestine below, forming a volvulus of great thickness and necessarily fatal. In rare instances, there is so little constriction of the invaginated intestine that it remains partially pervious. In these cases, life may be protracted for weeks or even months, the evacua-

tions being sufficient for the wants of the system. Death occurs, finally, in a state of exhaustion; Case 7 affords a notable illustration of this. This child, four months old, lived six weeks after the symptoms of invagination commenced, and seventeen days "with a portion of the bowel protruding from the anus." It was found at the post-mortem examination, that part of the ileum had descended through the entire colon and had remained pervious. Case 35 affords another illustration of the same. It is not known at what time the invagination began in this case, though there were symptoms of it for seven months before death. During the last six weeks of his life, the invaginated intestine protruded frequently from the anus, and was replaced by the mother. In this case, "the cæcum was inverted, and had descended through the colon to the lower portion of the rectum, carrying with it the ileum and the entire colon, except the last ten or twelve inches." In Case 19, the symptoms indicated a continuance of the disease for three, if not eight, months. As the intestine becomes invaginated, its mesentery or meso-colon is also invaginated, and, with rare exceptions, its veins compressed. The pathological state of the incarcerated mass soon becomes that of intense congestion. In infants, usually in a few hours, so great is the distension of the capillaries that they give way; blood escapes into the intestine, which coagulates around the volvulus and passes from the bowels in scanty motions. On examining the invaginated intestine after death, if gangrene has not occurred, it is found of a uniform intense red colour, sometimes resembling a long and firm clot of blood. In those who die early, there are no traces of inflammation; but in more protracted cases, the attrition between the serous surfaces excites local peritonitis. In none of the fifty cases in which post-mortem examinations were made did the inflammation extend beyond the invagination. Usually, the intestine forming the exterior of the invaginated mass is much drawn together or puckered. In the case treated by myself, 34, the entire colon, which formed the exterior, was compressed within a space of six inches or less, since about twelve inches of the ileum, doubled on itself, passed through the entire colon so as to protrude from the anus, the only part of the large intestine inverted being the caput coli. In Case 16, six or seven inches of the ileum were compressed within the space of one inch.

The abdomen, at first of natural fulness, and soft, usually becomes more and more distended till the close of life; but in cases of much vomiting, the distension is moderate. This fulness is due to gas and fecal accumulation, above the invagination. The portion of intestine below it is generally empty, unless it contain a little blood, and is sometimes contracted.

There are few morbid changes in intussusception besides those pertaining to the intestine. Professor Simpson saw Case 49, and remarked before the medical society at which the specimen was exhibited, that it appeared to him from the distended state of the cutaneous veins, that the vena cava was compressed. In Case 38, there was probably compression of the left

iliac artery ; for, two days after the expulsion of the cæcum and a part of the colon, pulsation ceased in the left leg, and all that part below the patella became gangrenous, and sloughed off ; after which the patient recovered. It is probable that in these cases the bloodvessels were more or less compressed by the cicatrization and contraction which followed the sloughing of the intestine, such as occurred in Case 46. This child, on the eighth day of his sickness, lost by the stool fifteen to eighteen inches of the ileum, after which, he rapidly recovered. Twelve weeks later, he was seized with typhus fever, which proved fatal in two weeks. The records state : "The traces of the diseased bowels were visible by a considerable puckering and contraction where the slough had taken place, and the parts united." It is a reasonable supposition that "puckering and contraction," operating over the bloodvessels, produced the phenomena of impaired circulation, observed in Cases 38 and 49. In Case 38, although the cæcum and a part of the colon contiguous were discharged, the invagination was probably in the descending colon, if not lower still, so as to correspond with the artery, the common or perhaps internal iliac. Whether or not this is the true explanation, the fact remains, that in some cases of sloughing of invaginated intestine, the circulation in the large venous or arterial trunks of the abdomen is obstructed.

Symptoms.—Pain in the abdomen, usually paroxysmal, is generally the first and one of the most conspicuous symptoms. It is often severe, resembling the pain of hernia, and abating only with the failing strength of the child. After the few first days, there is apt to be more or less continuous pain, arising from the presence of inflammation. In the beginning, firm pressure on the abdomen causes no distress, but after a period, there is tenderness frequently in a marked degree no doubt corresponding with the inflammatory stage. It is confined to the part of the abdomen, corresponding with the invagination. At this point the abdomen is more full than elsewhere, and not unfrequently the physician can feel the invaginated mass, and detect its exact location. Sometimes, at an early as well as later period, cerebral symptoms occur, as in Case 4, which terminated in death by convulsions on the second day. Convulsions are, however, comparatively rare, and the mind is generally clear till the last moment. In infants, the countenance in the intervals of pain is often placid, and not indicative of any serious disease in the first stages of the complaint. In older children, there appears to be an earlier and more continuous sensation of distress or oppression in the bowels. At a more advanced period, in both, the countenance becomes anxious and haggard, the eyes hollow or sunken, the body loses its plumpness, and, if the case is protracted, becomes emaciated.

Vomiting is rarely absent ; in thirty-nine out of forty-seven cases, it is stated to have been present ; in seven cases, there is no record of this symptom, while it is recorded absent in only one case. This is Case 50, the record of which is very meagre, and death occurred the second day. The vomiting

becomes stercoraceous in a few days, and ceases usually some time before the close of life, from the failing strength, or the occurrence of gangrene. It has the effect of relieving distension.

The appetite is usually impaired, if not absent; infants sometimes nurse for several days, probably, as much from thirst as hunger.

There is often one natural evacuation from the bowels after the intussusception commences, and then succeeds obstinate constipation. This evacuation is of the feculent matter below the invagination. In children, under the age of one year, scanty motions of blood, often mixed with mucus, begin to occur in a few hours. In twenty-six children, under this age, I find that twenty-three had such evacuations, occurring usually several times in the course of the day; in two of these twenty-six there is no record of this symptom, but in the remaining case, it is stated to have been absent. Scanty evacuations of blood, unmixed with feculent matter, have been considered pathognomonic of intussusception in the infant, and we see the ground for such belief; but in rare cases the volvulus may be partly pervious, and, although the dejections may contain blood, they are also feculent. There is one such case in our collection (7), already referred to, under the head of Pathological Anatomy. In this case there was the rare anomaly of so large an opening through the ileo-caecal valve, as to allow not only prolapse and descent of the ileum through the entire colon, so as to protrude six inches from the anus, but also fecal passages through it daily.

In children, above the age of one year, the intestinal capillaries are not so frequently ruptured as under that age, and sanguineous evacuations are therefore less common. We have records of eighteen cases of invagination between the ages of one year and twelve, in only six of which is it stated that there were bloody motions. And in these six the blood was not passed frequently, or daily, as in infants, nor so pure, unless in Cases 7 and 9, the records of which are not explicit on this point. Two of these patients passed moderate bloody evacuations, after protracted periods of constipation. One had feculent discharges through the entire sickness, and in the remaining case, blood was passed at first, but, finally, the discharge was only feculent.

The condition of the bowels in the eighteen cases was, for the most part, that of obstinate constipation, no dejections, whether bloody or fecal, occurring for days; but there were a few striking exceptions. In Cases 5, 19, and 35, the bowels were relaxed. The ileum in these cases had descended through the entire colon, or the larger part of the colon, and, being pervious, the feces escaped from the anus without detention in the large intestine, or with detention only in its lower portion, and were therefore liquid.

Tenesmus is another symptom which adds much to the suffering of the child. It is not always present, but, in a large proportion of cases, even where the invagination is in the upper part of the large intestine, there are

frequent and distressing attempts to pass the incarcerated mass. The tenesmus does not commence as early as some of the symptoms, and it ceases when the strength is much reduced.

The surface is usually cool in the first stages of the complaint, but finally, as febrile reaction comes on, symptomatic of the inflammation, the temperature rises, and continues above the healthy standard, till the intestine sloughs, or till the stage of collapse occurs, which ushers in death. The pulse, especially in the infant, is sometimes tranquil at first, but, whatever the age, it generally soon becomes accelerated from the paroxysms of pain, and, subsequently, from the serous inflammation in the invagination. There is no disturbance of the respiration, except that it is somewhat hurried from the fever, and from the pain felt in advanced cases, on taking a full inspiration.

It will be seen the symptoms varied somewhat under the age of one year from those above that age; but the most striking differences in the cases depended on the amount of intestinal constriction.

Diagnosis. In the infant, the diagnosis of intussusception is not in general difficult. The presence of obstinate constipation, vomiting, tenesmus, paroxysmal pain, and scanty passages of pure blood, or blood mixed only with mucus, indicate this complaint, and in the cases whose histories I have collected, an accurate diagnosis was generally early made. In one or two instances, the disease was supposed at first to be dysentery, and treated as such, although purgatives produced no fecal passages. It should be borne in mind that, in rare instances in intussusception in the infant, the bowels may be relaxed, and some other symptoms besides constipation may be absent, especially tenesmus, thus rendering diagnosis difficult.

In children above the age of one, or at least two years, the symptoms are not so decided, and the diagnosis should be more cautiously made. Obstinate constipation in most cases, in spite of purgatives and clysters, is, perhaps the most important diagnostic symptom. It is well to recollect, as aiding in the diagnosis, that in children of all ages, suffering from intussusception, clysters are usually given with difficulty, and are quickly and forcibly returned, on account of the resistance of the invaginated mass. And often by examination of the abdomen, the location and even the shape of the volvulus can be detected.

Duration. In the following table, the duration of the intussusception, in forty-eight cases, is given, as nearly as it can be ascertained from the records.

2 died the 1st day	1 lived over a week
6 " 2d "	1 died the 8th day
14 " 3d "	1 " 10th "
2 " 4th "	1 lived nearly a month
5 " 5th "	1 lived (case 7) 6 weeks
2 " 6th "	3 time of death not given
2 " 7th "	7 recovered

In the two remaining cases, 19 and 35, the exact duration is not certain; but it was far beyond the usual period. The first of these, a girl of six years, having eaten raw carrots, was seized with pain in the abdomen, which continued eight months, when she died. During the last three months she passed mucus and blood. In this case the caecum had descended to the anus, drawing with it the ileum which remained pervious. The symptoms indicated the continuance of the invagination for three months, if not eight. In the other case, the child complained of pain in the abdomen for many months, and occasionally vomited. During the last six weeks of his life, all the phenomena of invagination were present. The pathological condition of the intestine found after death was essentially the same in both cases.

In West's excellent treatise on diseases of children (second edition, 1854, page 380), it is stated, that death in this complaint always occurs within a week. These statistics prove that this remark should be qualified, although a large majority do die within the first seven days. In thirty-three cases death was within the first week. In all fatal cases in which strangulation was complete, death took place within eight days, the day of greatest mortality being the third. In these cases the average duration was 3.7 days. Death on the first day is rare, but it occurred in two instances. When it is so early it is often, if not generally, through cerebral congestion.

Prognosis. Intussusception is, in its nature, so grave an accident, that the physician called to a case should always expect and predict a fatal result. A favourable issue is only through an unusual combination of circumstances. But while death is the common result, there are three different modes of termination, in which life is preserved. First, the reduction of the incarcerated intestine, with immediate relief. There can be no doubt that it is possible for intussusception in the colon, when recent, to be reduced by the unaided action of the bowels, in the same way as the common, simple intussusception in the jejunum and ileum, or as hernia is reduced through the vernicular action of the intestines. For sometimes, as in Case 4, there have been previously the same symptoms as those which accompanied the fatal attack, and which subsiding, the patient remained for a time in perfect health. This termination is probably rare, if the symptoms are sufficiently marked to necessitate treatment. Another mode of favourable termination has been mentioned by some European observers, namely, a gradual return to health, the intestine remaining invaginated, but being pervious. At the meeting of "the Westminster Medical Society," at which Case 30 was the subject of discussion, Dr. Johnson alluded to this mode of termination, stating that the inverted intestine became agglutinated. Bouchut evidently refers to the same in the following passage: "Among other children the disease lasts a much longer time, but the vomitings gradually cease, the intestinal hemorrhage disappears, the strength returns, and the health becomes restored without the expulsion of fragments of the intestine.

M. Rilliet, who points out this possibility of the cure of intestinal intussusception, observes, that it always takes place in this manner. It is true, that it is often thus," etc. We do not believe that favourable cases of intussusception terminate in this manner as often as these writers would lead us to suppose; certainly in no instance in our collection was there such a gradual subsidence of the complaint as described by them. So far as we have been able to ascertain from the histories of intussusception, in the vast majority of protracted cases there is either death or the third mode of favourable termination, namely, sloughing. In all the cases which recovered in the foregoing collection, a portion of intestine sloughed and was expelled from the anus.

Infants with intussusception, other than the simple form, which we described at the beginning of this paper, almost invariably die. The reason of this is obvious, when we consider that at this age, in a few hours after the invagination begins, the imprisoned mass becomes so congested that its capillaries give way, and its reduction is impossible by any appliance of medical art. We cannot, with any reason, expect recovery except through sloughing, and the expulsion of the displaced intestine; and few infants have the requisite strength for so tedious and exhaustive a process. The youngest child that recovered in this way, of which I have obtained the history, was one reported by M. Marage, an infant thirteen months old. With the exception of this case, the youngest, so far as I have been able to find, was (40) a boy 5 years of age. The older the child the greater of course the endurance, and the better the hope of recovery. In our collection are the records of seven cases which resulted favourably by sloughing. These children were of the ages of 5, 6, 6, 9, 11, 12, and 12 years. The separation of the invaginated mass occurred in six of these between the sixth and twelfth days, with an average of nine and a half, the time not being given in one case. If, then, the patient can be carried through the first week without too much exhaustion, we may each day look for the discharge of the slough, the reopening of the bowels, and ultimate recovery.

In those rare cases in which there are daily feculent dejections, recovery is still improbable. At an early period reduction is, no doubt, more easy than when there is strangulation, but from the easy movement of the one portion of intestine on the other, the invagination, ordinarily, soon becomes so extensive as to be necessarily fatal.

Mode of Death.—In a large majority of cases, death is through asthenia. There may be convulsive movements more or less marked, but the prevailing characteristic as death approaches is, usually extreme exhaustion. In exceptional cases, as already intimated, the life of the sufferer is cut short by convulsions before the stage of exhaustion is reached, as in Cases 2 and 4. In all the fatal cases of intussusception collated by us, death occurred in one of these two ways.

Treatment.—It is unfortunate in cases of intussusception that the time

in which treatment can be of most service is apt to pass by before the true condition of the intestine is detected. Invagination being comparatively rare, the patient is generally on the first day treated for colic or dysentery, or some other common affection of the bowels; and it is often not till the second day, when the intestine has become incarcerated, that the physician accurately diagnoses the disease. The purgative medicines usually given in the commencement are quite as likely to injure as to benefit. In fact both reason and experience teach us the impropriety of such treatment in this complaint. Cathartic remedies act as a *vis a tergo*, and are likely, at least in some instances, to cause a still further descent of the inverted intestine. The purgative, which above all others has been most recommended, is the crude quicksilver, but the voice of the profession appear to be decidedly against its administration in any stage of intussusception. This agent was administered in two doses, of an ounce each, to one of the patients in the foregoing collection, and four or five days before death, but no portion of it ever passed from the bowels. At the *post-mortem* examination, a considerable part of it was found in small globules along the small intestines, each coated with a black substance, either the black oxide of mercury, or the sulphuret. Being converted into a substance easily absorbed, its effect on the system must be very injurious, if retained, as it usually will be.

A proper understanding of the true pathological condition of the intestines suggests a very different mode of treatment, namely, either by injections, or by sustaining the strength of the patient, and giving palliative remedies, in the hope that recovery may take place through the process of sloughing and adhesive inflammation. If we may judge from the remarks of physicians who have reported cases, and by discussions at societies in which specimens have been presented, this simple treatment is the one commonly adopted by the intelligent portion of the profession.

The injections which have been used successfully in apparent cases of intussusception have been chiefly those of air or water. The medical journals contain reports of cures by both these agents. The following communication to the *London Lancet*, for March 17, 1838, explains the method of employing air:—

"Sir: The subject of intussusception having lately been discussed at the two principal medical societies in London, and nothing new having been elicited on these discussions, I take the liberty of suggesting to the profession, through the medium of your valuable periodical, the trial of inflating the bowels by means of a glyster-pipe attached to a common pair of bellows; it has fallen to my lot to witness several of these most distressing cases in children; the nature of the obstruction was foretold during life, and unfortunately verified by *post-mortem* examination. The last case of the kind, which came under my care about two years since, presented all the usual symptoms: intolerable restlessness, the most obstinate sickness, the singularly distressed state of countenance, and shrunken features. The usual remedies were had recourse to, viz., warm baths, glysters, anodyne frictions over the abdomen, &c., but without avail. As a forlorn hope, I made trial of inflation by the above means, with the most happy

result. The sickness immediately ceased; the child within an hour passed a natural stool; fell into a sleep, and in the morning was almost without ailment.

I am, sir, your constant reader, and obedient servant,

SAMUEL MITCHELL, Surgeon.

KINGSTON-ON-THAMES, Feb. 26, 1838."

This mode of treatment is termed novel in the *Lancet*, but it is as old as the time of the "father of medicine," who says: "*Et ulterius addit sin minus, hæc opem ferant folle febrili, in ventrem indito flatus immitatur.*" (Hippocrates' Works, translated from the Greek, by Grimm, 4 Bd. page 168.) Haller also recommended the same treatment: "*Flatus etiam immixtus celerime susceptionem dispellet.*" (Physiologia Corporis Humani, tom. vii. page 95.)

When air is employed to remove the intussusception, it is necessary to produce distension of the intestines to the fullest extent, below the seat of the complaint. The profession generally, so far as I can ascertain, depend in the treatment of this affection more on clysters of simple water, than on any other means, and the journals contain reports of cases, having the symptoms of intussusception, which were relieved by this treatment. Water, like air, must be injected in considerable quantities, and it is only in the commencement, that we can expect any good from the use of either air or water; for in a little time the inverted intestine has not only become so firmly fixed, but ordinarily has descended so far, that the injection is immediately and forcibly returned in spite of all our efforts to retain it. There is a class of physicians who, when foiled in their attempts to arrest a disease, are apt to adopt heroic measures, the "kill or cure" treatment. They rely too much on medical art, and too little on nature. So in cases of intussusception, when injections and other rational measures have failed, there are those who recommend cutting down upon and returning the intestine, in the same way as the surgeon treats strangulated hernia; and this operation is said to have been successfully performed in the adult. If the tumour can be readily detected by external examination; if its position be favourable, and the patient an adult and robust, the propriety of the operation, in rare instances, might be seriously considered; but there must be very few surgeons who would undertake or recommend it in the child, under any circumstances. As an objection to the use of the knife, is the important fact, which contra-distinguishes intussusception from hernia, that sloughing which finally occurs, if life is prolonged, is conservative in the former, though fatal in the latter. After failing by repeated injections to return the intestine, active measures should be discarded, and the expectant plan adopted. Recollecting that death is from asthenia, and that after a certain time, if the strength holds out, the mass which closes the intestine is expelled, we should endeavour to sustain the vital powers by nourishment, and finally stimulants, and relieve the sufferer by the judicious use of opiates. At this stage of the complaint, there is usually local peritonitis between

the coats of the volvulus, and this also requires the use of some form of opium. Sustaining and expectant measures ought to be adopted early, for if our efforts to replace the bowel do not succeed the first or second day, there is no prospect of their being successful subsequently.

Vomiting, which is so constant, requires no treatment. It is salutary. It relieves the distension, and prevents fecal accumulation, which, pressing downwards, increases the extent of the invagination, and counteracts the effect of the injections. Convulsions are to be treated by the local measures usually employed when they occur under other circumstances. At first no external treatment is required over the seat of the invagination, but when the abdomen becomes tender and painful from the local peritonitis poultices are of service.

Aphorisms.—1. Simple intussusception is common in the jejunum and ileum of infants, but intussusception sufficiently grave to constitute disease, or to be attended by symptoms, very rarely, perhaps never, occurs at this age in the small intestines (the small intestines constituting the exterior, as well as the interior of the mass). In children above the age of one or two years intussusception of a grave and fatal nature does occur, though rarely in the small intestines.

2. With a few exceptions, the seat of the grave form of intussusception, or the so-called inflammatory, is the first part of the large intestine.

3. There is no symptom, which will enable us to distinguish, with certainty, intussusception in the small intestine, from that in the colon. The main difference appears to be, severer pain, and more constitutional disturbance, less tenesmus, and less abdominal distension.

4. From an analysis of 47 cases of intussusception, in which the ages are given, it appears that the period of greatest frequency of this affection is between the third and sixth month, the maximum number being at the fourth month, and there are more cases under the age of one year, than between that age and the age of twelve.

5. Cases reported show an excess of male children affected over female in the proportion of two to one.

6. Under the age of one year, intussusception begins, in most cases, suddenly, in a state of perfect health. Occasionally, the attack is preceded by diarrhœa or constipation, or the two alternately, or by dysentery. Above the age of one year, there is usually, not always, previous disorder of the bowels.

7. Worms are rarely the cause of intussusception, but, in a few instances, it seems to be produced by the irritation of lumbrici or ascarides.

8. This disease, in children, with a few exceptions, commences either with the inversion and prolapse of the lower end of the ileum through the ileo-cæcal valve, or with the invagination of the caput coli in the colon. The inverted intestine, gradually descending towards the rectum, draws after it the successive divisions of the colon; the veins of the mesentery, or meso-

colon, are compressed; circulation is arrested, causing intense congestion of the capillaries, which, in the infant, commonly give way, and occasionally in older children. In rare cases, which are usually protracted to several weeks, the intestine remains pervious, and circulation is not obstructed. Occasionally, the whole invaginated mass is received into the portion of intestine below, forming a double intussusception of great thickness and necessarily fatal. In a few instances, intussusception begins in the ascending, transverse, or descending portions of the colon. There is, at first, no inflammation in the invaginated mass, but the attrition of its serous surfaces finally causes local peritonitis; general peritonitis does not occur. The containing or external portion of the invagination becomes much pressed together or puckered. Very rarely, the large bloodvessels of the abdomen are compressed by the invagination or by the cicatrization which follows the process of sloughing, producing serious results.

9. The symptoms are pain—sudden, severe, and at first paroxysmal, but finally more or less constant; vomiting; constipation, or, rarely, diarrhœa; scanty motions of blood in infants, and occasionally in older children; tenesmus; sometimes convulsions; after a few days, a quick pulse, abdominal distension and tenderness, and a haggard and anxious countenance.

10. The location and even shape of the tumour can often be determined by external examination, and a probable, but not precise, idea of its location can be formed by noticing the resistance offered to injections.

11. Cases in which the intestine is strangulated are fatal within eight days. If the intestine continue pervious, and its circulation unobstructed, the child may live for many weeks, if he do not recover. An early death is often from convulsions.

12. In infants, the proportionate number of fatal cases is larger than in older children, on account of their greater feebleness, and of the complete and almost immediate strangulation of the intestine, as shown by the bursting of its capillaries. I know of no favourable case of intussusception under the age of one year, while, between the ages of two and twelve, more than one-third of the cases reported in the medical journals recovered.

13. There are three modes of favourable termination: first, the reduction of the displaced intestine, with immediate relief; secondly, a gradual subsidence of the symptoms and return to health, the displaced intestine remaining invaginated, but being pervious, and becoming atrophied, contracted, or agglutinated, so as not to interfere with digestion or the normal action of the bowels; thirdly, sloughing and expulsion of the invaginated mass. The second method is stated on the authority of Rilliet and other European observers. All who recovered in the preceding collection of cases recovered in the third mode, the expulsion of the mass occurring between the sixth and twelfth days, with an average of nine and a half.

14. There are two modes of death: first, by convulsions; secondly, by exhaustion. The latter is the usual mode.

15. The treatment is simple. Purgatives are useless, if not injurious. As early as possible, large injections of water should be used. If these fail to reduce the intestine, air should next be thrown into the rectum by means of a bellows or other contrivance, until the abdomen is greatly distended. If the repeated use of air and water is unsuccessful, we should soon desist from active treatment, and endeavour to sustain the patient's strength till the bowels are reopened by sloughing. Opiates should be given to relieve pain and keep in check the serous inflammation, and, when the abdomen is tender, poultices may be employed; but, further than this, our reliance must be on nutritious diet and stimulation.

147 N. 49TH ST., NEW YORK.

ART. II.—*Remarks on Chorea, with Notices of some Allied Disorders.*

By JAMES J. LEVICK, M. D., one of the Physicians of the Pennsylvania Hospital.

THE involuntary, grotesque, but in some instances distressing, symptoms of chorea are too well known to need description in this place. Almost all writers on this disease quote the following graphic description of Sydenham:—

“St. Vitus’ dance. This is a kind of convulsion which attacks boys and girls, from the tenth year to the time of puberty. It first shows itself by limping or unsteadiness in one of the legs, which *drags*. The hand cannot be steady for a moment. It passes from one position to another by a convulsive movement, however much the patient may strive to the contrary. Before he can raise a cup to his lips he makes as many gesticulations as a mountebank, since he does not move it in a straight line, but has his hand drawn aside by spasms until by some good fortune he brings it at last to his mouth. He then gulps it off at once, so suddenly and so greedily as to look as if he were trying to amuse the lookers on.”—*The Works of Thomas Sydenham, M. D., translated by R. G. Latham, M. D., etc. Syd. Soc. Ed., London, 1850, vol. ii. p. 257.*

Among the symptoms in choreic patients not generally recorded, but which I have sometimes observed, are a tendency to fall down stairs, a disposition to hide in holes and closets, from which they can with difficulty be extricated (Fleischmann), and as a premonitory symptom prolonged insomnia.

While separately the causes of chorea are numerous, they may all, I believe, be classed under one head, that of irritations affecting a highly sensitive nervous organization. These causes may be predisposing or determining, congenital or acquired, centric or eccentric. By congenital it is not meant to be asserted that the specific disease, chorea, is transmitted from parent to child, but that the peculiar nervous organization which favours its development under the usual exciting causes is so. This peculiar diathesis shows

itself in an unusual delicacy of nervous organization which is generally associated with a feeble muscular frame. I believe, although I have never seen it so recorded, that the marriage of relatives, especially of first cousins, is highly favourable to the development of this disease, and am familiar with an illustration of this in a large family the children of first cousins, almost all the members of which are more or less choreic, some of them strikingly so. In their case the irregular manifestations of nervous force in the muscular system appear to have taken the place of the impairment of cerebral function which often attends the offspring of such marriages, as the subjects of it are possessed of unusual intellectual attainments. Returning to the proposition that irritation to the nervous system is the exciting cause of chorea, we may consider the commonly received causes of this disorder.

Fright is universally admitted to be one of the most common, if not the most frequent cause of chorea. M. Guersent, however, says it is not the fear which causes the chorea, but the disposition to this malady which causes the child to be so easily affrighted.

Fright I believe acts in two ways in producing the phenomena of chorea. In the first place by directly disturbing the nervous force, as a blow on the forehead or the poison of malaria would do; and secondly by affecting the action of the various emunctories so that the depurative processes are not healthfully performed, and toxæmia is thus developed. No one can be ignorant of the influence of our emotional system on the functions of the various organs. Arrest of the secretion of the gastric juice, of the menstrual flow, the sudden development of jaundice, convulsions and even death in children at the breast, all have followed sudden fright or violent anger. Hence chorea may be developed immediately or remotely. Romberg reports a case coming on a few hours after fright, while Gull reports an interval of nine months to have elapsed before the manifestation of the disease.¹

Rheumatism as a concomitant, and, as it is believed, a provocative of chorea, has long been recognized. Dr. Addison and Dr. Bright have especially called attention to this as an exciting cause of chorea. The belief has been expressed that in almost every instance there is mitral disease in chorea. The authorities quoted are of great weight, but after a careful observation of many cases of chorea during the last ten years it has not happened to the writer to find this association a frequent, much less a constant one. Bellows murmurs referable to anemia and their temporary occurrence, from, as I believe, a sort of choreic spasm of the columnæ carneæ

¹ A curious case of *chorea cured by fright* is recorded by Dr. Hughes (in Guy's Hospital Reports, vol. iv., N. S., 1846, p. 36). A girl who had been cured of a former attack of chorea had a return of her complaint. She was going to the hospital to apply for readmission, but on her way was much alarmed as she passed over London Bridge by a person being run over. She, however, pursued her course. On her arrival at the hospital, both she and her mother were surprised to find that the complaint had left her. She remained well.

and their tendinous chords, causing irregular action of the auriculo-ventricular valves, are not unfrequent, but a persistent endocardial murmur due to mitral disease is certainly not often met with in choreic patients as we see them in our American hospitals.¹ That the irregular movements of chorea are not confined to the extremities is well known. Romberg relates an instance where the diaphragm, the intercostals, and other muscles of respiration were spasmodically affected in a case of chorea. Spasm of the glottis is also related, and it has been even suggested that stammering is but an instance of chorea of the organs of speech. Dr. Pepper, of the University of Pennsylvania, informs me that he has known incontinence of urine to interchange with chorea of the external muscles, and conversely.

While thus expressing the belief that mitral disease is by no means a constant association of chorea, I do not doubt that the irritation of rheumatic toxæmia in a person predisposed to chorea may be a determining cause of that disease, and that this too may act directly or indirectly, on the peripheral or ganglionic structure, or involve disorganization of the spinal membranes or substance. Hence the very marked difference in the intensity with which the symptoms of chorea show themselves. Thus, it may affect the intercranial structure, producing symptoms more serious even than those of chorea. Mesnet,² in an essay on certain cerebral accidents which developed themselves in the course of rheumatism, mentions a case of chorea occurring with articular rheumatism with symptoms of rheumatic meningitis, as well as cases of rheumatic disorder of the brain associated with more general convulsive movements, disturbance of all the principal functions, and proving mortal in a few hours; this last by Stoll is called rheumatic apoplexy. M. Vegla quotes three such cases.³

Coley⁴ mentions a case of chorea in which a translation of rheumatic irritation to the fibrous coat of the spinal marrow produced fatal meningitis. In a number of cases reported by Hughes,⁵ eight out of fifty-eight had their origin in rheumatism. Dr. Hughes thinks it is probably only a sympathetic irritation of the spinal marrow. Dr. Watson⁶ thinks, in some cases of chorea with coincident rheumatic cardiac disease, that some morbid condition of the spinal marrow might have arisen simultaneously with the cardiac inflammation, or that the cardiac disease might have been an eccentric exciting cause of the disorder of the muscles; or that it may be from a diseased blood causing articular cardiac disease and spinal disorder. This

¹ Romberg (Disorders of the Nervous System, translated by E. M. Sieveking, M. D., etc., p. 53 *et seq.*, vol. ii.) has rarely found chorea with disease of the heart.

² Archives Générales de Médecine, tome vii. 5 série, p. 704.

³ Ibid., tome ii. 5e série, Paris, 1853.

⁴ Pract. Treatise Diseases of Children. By James M. Coley, Philadelphia, 1846.

⁵ Guy's Hospital Reports, vol. iv. N. S., 1846, p. 36, *et seq.*

⁶ Lectures on the Principles and Practice of Physic, by Thomas Watson, London.

last opinion which I have expressed, as coinciding with my own views, was also that held by Dr. Begbie, and more recently published by Dr. Bond.¹

The irritation produced by intestinal worms, by constipation and the accumulation of feces in the bowels, is without doubt a frequent cause of chorea. This irritation may be developed directly or indirectly, directly by pressure on the peripheral nerves, and indirectly by the altered condition of the blood produced, the absorption of fetid gases and the general depression of the system which attends this condition. Hence, the value of purgatives as so highly recommended by Dr. James Hamilton,² and which were relied on by many of his cotemporaries. Hence, too, their failure and positive hurtfulness in cases of chorea not due to this cause.

Irritations connected with the teeth would seem to have more to do with the development of chorea than we would at first suspect. A case is reported in *Archives Générales*, p. 538, tome v., in which chorea was induced by a carious tooth, and disappeared with its withdrawal. Monro, the younger, used to state in his lectures that he had several times observed the disease to occur in children about the period of the second dentition, when the former set remained, or when the new set were shining through the gums, and that he had speedily cured the disease by drawing the first teeth, or by lancing the gums.³

The toxæmia which may be supposed to result from the repression of cutaneous eruptions would satisfactorily explain the numerous reported cases by the earlier writers of chorea produced in this manner. Thus, Darwin refers to two instances in which he had seen St. Vitus' dance occur after cure of the itch by wearing a mercurial girdle, and relates a case of chorea having appeared in a young girl wearing such a girdle. He ordered her to sleep with her sister who had the itch, and thus reacquiring the itch she was cured of the chorea!⁴

In the same category we may class the results of sudden arrest of the secretion of the skin. Thus, Romberg records a case of chorea from suppression of the perspiration of the feet, from which, in this case, "the patient was cured by a domestic remedy, common in Berlin, which consists of introducing the feet into a bag containing living ants with their eggs, while they are being roasted by a hot stone."⁵

This doctrine of a poisoned blood acting as a determining cause of

¹ On the Pathology of Chorea, by Francis T. Bond, Brit. and For. Med. Chir. Review. July, 1860, p. 201.

² Observations on the Utility and Advantage of Purgative Remedies in Several Diseases, by James Hamilton, M. D., etc., 2d ed., p. 86, *et seq.*, Edinburgh, 1806.

³ Reese's Cyclopedia (Am. ed.), vol. viii. Part 1. Article, Chorea.

⁴ Zoonamia, or the Laws of Organic Life, by Erasmus Darwin, M. D., &c., vol. ii. p. 424. Under the head of "The Itch," Darwin includes numerous cutaneous affections.

⁵ Romberg, op. cit.

chorea is, after all, very much a return to the old theory of Sydenham,¹ and to that of humoral pathology, towards which we all seem to be rapidly recurring.

Vicious habits, exhausting discharges, protracted illness, as in a case of typhoid fever reported by M. Blache,² ending in anemia or other depravation of the blood, may excite chorea in a choreic diathesis. Fully to appreciate the action of these agencies, we must bear in mind that for the proper development of nervous force we must have not merely the great central reservoirs, their efferent and afferent cords, but, what is too much overlooked, a healthful constitution of the blood, especially with reference to the proportion of its red corpuscles. If this deviate in any marked degree from the recognized healthy standard (130 parts in 1000), we have irregular movements and other phenomena resulting, as seen in the hysteria and neuralgia of anemic women. Nor must we omit from our consideration the importance of a normal temperature (about 100° F.), any marked deviation from which is also characterized by impairment of nervous influence.

Several cases of chorea are reported which were attended with furuncles and gangrenous ulcers. These symptoms are not unlike those of *raphania* or ergotism, in which a poisoned blood is associated with violent convulsive movements of the extremities.

I have said that the source of the irritation might be centric or eccentric. As an illustration of the former, I may quote a fatal case reported by Dr. Bright,³ in which, with other lesions, there were found five or six bony plates attached half way down the spine to the pia mater by small peduncles. Stiebel, quoted by Romberg,⁴ considers swelling of the seventh cervical vertebra, and Froiep (op. cit.) tumefaction of the odontoid process, as an exciting cause of chorea.

Uterine irritation plays an important part in the causation of chorea, and this irritation may be due to various conditions of the organ. The greater frequency of this disease in females than in males has long been admitted, and its occurrence from ten to fifteen years of age, or later, has been explained by the important physiological changes which accompany the development of puberty. Local hyperemia, the failure or derangement of the menstrual flux, changes in the structure of the organ, are all prolific sources of chorea. I have before alluded to the *modus operandi* of disorders of the catamenia, and now refer chiefly to the other forms of uterine

¹ "Now this affection arises from some humour falling on the nerves: and such irritation causes spasm." Sydenham, op. cit., p. 199.

² Dictionnaire de Médecine, tome vii. p. 543. Paris, 1834.

³ Reports of Medical Cases, by Richard Bright, M. D., &c., p. 490, *et. seq.* London, 1831.

⁴ Romberg, op. cit.

irritation. Thus,¹ a case is reported by Richter of chorea in a girl æt. 14, which terminated fatally in less than three weeks, in which the whole body of the uterus was found hard and completely scirrhus. Ingleby² quotes Mr. Bedingfield to show that uterine irritation, independent of pregnancy, may produce chorea, as in a case due to deranged menstruation. Dr. Bright³ mentions a case in which the uterus and ovaries were more or less changed in structure; and a case is mentioned in the *Medical and Physiological Journal*, vol. lvii. p. 240, in which the uterus was positively inflamed. Alterations in the ovaries, or their appendages, have been sufficient to develop chorea: thus fatal cases are reported in which, on *post-mortem* examination, "nothing was found to account for the disease but a deposit of bony or sabulous matter in the fimbriated extremities of the Fallopian tubes."⁴

But a cause of chorea to which I wish to call attention is that of pregnancy, and I am the more induced to do this from the belief that among us it has not received the attention which it merits, and from the fact that during the past summer three cases of pregnancy associated with chorea have come under my care.

Even in the early history of St. Vitus' dance this association seems to have been noticed. Thus Burton, in his *Anatomy of Melancholy* (quoted by Hecker,⁵ p. 92, note), alluding to the dancers, says: "'Tis strange to hear how long they will dance, and in what manner over stools, forms, tables even, great bellied women sometimes (and never hurt their children) will dance so long that they can stir neither hand nor foot." Schenckius, treating of epilepsy, which if carefully read will be found not to describe epilepsy merely, but hysteria and chorea, alludes to the association of convulsive movements and pregnancy.⁶ Dr. J. T. Ingleby (*op. cit.*) relates five cases of chorea associated with pregnancy: two of these patients recovered, one before and one after delivery: three proved fatal; in one of these death

¹ Richter, quoted by Eberle, *Pract. of Medicine*, Philada. 1831.

² Clinical Lectures to the Students at Birmingham, by J. T. Ingleby, M. D. London Lancet, 1840, p. 783.

³ Medical Reports, by Richard Bright, M. D., &c.

⁴ Bond on Chorea, *op. cit.*

⁵ The Epidemics of the Middle Ages, from the German of J. F. C. Hecker, M. D., &c. Translated by B. G. Babbington, M. D., &c.

⁶ Schenckius, *Observationes Medicorum rerum*, &c., Francofurti, 1609, Lib. I. *De Epilepsia*, quoting older authors, says: "I have seen certain pregnant women affected with epilepsy and not cured until delivery, altho' better for bleeding." Another case is mentioned in which the patient was not cured until parturition, and in which convulsive movements were due to the presence of a dead and putrid fœtus. He says this epilepsy does not render abortion necessary except in a very vehement case; he recommends moderate bleeding from the arm or leg. He mentions, among the causes of epilepsy, fright from demons.—*De Spasmo*, pp. 128-9.

occurred from exhaustion after delivery. Dr. J. C. W. Lever¹ reports five cases of chorea occurring to pregnant women. In the first case, in which "conception took place ere the torch of Hymen was extinguished," the phenomena were those of aggravated chorea. These symptoms continued until delivery, after which they at once disappeared. At her next pregnancy this same patient was similarly attacked, but, what is extremely interesting, an accidental fright having induced a miscarriage at the fourth month, the choreic symptoms disappeared with the expulsion of the foetus. In the last of the cases reported, the choreic disorder continued up to the time of her confinement, when, it is stated, "they ceased as soon as labour-pains commenced." The treatment in all these cases seems to have been the occasional use of purgatives and sulphate of zinc. The question of inducing premature labour was under consideration in the most aggravated case. Bright (*op. cit.*) mentions pregnancy as a cause of chorea. Romberg (*op. cit.*) reports three cases, and after referring to the observations of others, gives the following as his own deductions: "That in the majority of cases there had been no chorea in early life. Several females were exempt during the first pregnancy, and were attacked during the second. In two cases the chorea returned during the following pregnancy. The chorea of pregnant females is almost always bilateral. Chorea rarely exists in these cases after delivery, and abortion is rarely needed." Braun² refers to this subject, and states that the chorea of pregnant women is usually associated with hydramnia, that it is generally completely cured only after delivery at the full term or prematurely, and that it is rarely dangerous to the life of the mother. Lee³ reports a fatal case of chorea from pregnancy; and in a very recent work, *Tanner on Pregnancy*, the subject is ably discussed.

Dr. M. Duncan⁴ reports two highly interesting cases of a mild form of chorea occurring in pregnancy coming under his notice, affecting chiefly the lower extremities, very annoying at night, and chiefly on lying down in bed, when they continued so long as to deprive the patients of sleep, occasionally affecting the hands, the forearms being still. In the second of these cases these distressing symptoms were most marked at the sixth month of pregnancy. The patient was thin and of unhealthy appearance, and suffered much from vomiting after each meal. In the evening involuntary movements of the lower limbs came on, causing great annoyance, and continuing until she went to bed. After a short interval of sleep they recommenced, and lasted for several hours. They remained absent next day on

¹ Guy's Hospital Reports, 2d series, vols. v. and vi.

² The Uræmic Convulsions of Pregnancy, &c., by Dr. Carl. R. Braun, &c., translated from the German, with notes, by S. Matthews Duncan, M.D., &c., pp. 130 and 172.

³ Clinical Midwifery, London, 1848, p. 119.

⁴ Edinburgh Medical and Surgical Journal, January, 1854.

awakening until near evening. Both of these cases yielded to doses of the carbonate of iron, gr. x ter die, and moderate doses of laudanum at bedtime. These cases correspond closely to the condition known to the earlier writers as *anxietas tibiarum*, and to them the term *scelotyrbe*, employed by Galen, and which is believed by many to have been used by him as synonymous of our chorea, corresponds in its strictest etymological meaning—Τὸ αὐτοῦς limb, ἡ τυρβη restlessness. I shall now, as concisely as possible, relate a case coming under my care of *partial chorea, anxietas tibiarum, scelotyrbe*:—

CASE I. Mrs. —, a highly intelligent lady, aged about 35, the mother of four children. Excepting the usual morning sickness, had never suffered from any unpleasant symptom in her former pregnancies. Had never had chorea. In her last accouchement she suffered from great nervous exhaustion. About the end of the fourth month of her pregnancy she began to feel restless, with uncontrollable nervous movements in both feet. This restlessness was increased by sitting for a length of time, and was greatly aggravated by lying down, whether by day or by night. About this time her physician, to whom she was greatly attached, died suddenly. These distressing sensations had continued for two months when I was called to see her. At that time the irregular movements and abnormal sensations were such as to entirely prevent sleep. They were almost entirely confined to the lower limbs, though there were occasional nervous twitchings of the hand, of which the patient was scarcely sensible. She described these feelings as being of the most wretched kind, utterly unfitting her for attending to her domestic duties. Having been long familiar with the cases so accurately described by Dr. Duncan, the nature of this case was at once obvious, and the treatment advised by him was adopted. She had previously taken small doses of valerian without any appreciable benefit. I directed for her, after the bowels had been freely moved, fʒij of solution of sulphate of morphia with fʒj of sweet spirit of nitre at bedtime, and the use of lozenges of the subcarbonate of iron gr. x after each meal. The opiate gave her a good night's rest, the first she had enjoyed for a long time, but was followed next day by an increase of morning sickness, from which she had continued to suffer. Such, however, was the relief it afforded that it was continued for a few nights, subsequently replaced by Hoffman's anodyne, with directions to resort to the morphia if necessary. Under this treatment and a generous diet she steadily improved, and although she was liable to occasional nervous disturbance up to the time of her delivery, this was so slight as to give her no annoyance. She was safely delivered of a large male child, but the latter stages of labour were complicated with retained placenta. She subsequently had an attack of circumscribed metritis, during which time she suffered greatly from disorder of her nervous system, though of a character different from that during pregnancy, almost amounting to puerperal mania. Under the use of quinia, wine, and nutritious food she recovered, and now, nine months since, both she and her infant are in excellent health.

The next case coming under my care of nervous disorder connected with pregnancy was of a very different character, viz. :—

CASE II. *Fatal Chorea associated with Pregnancy*.—J. E., æt. 17, entered Pennsylvania Hospital May 23, 1860. The following history of her

case was subsequently learned: She was a pretty, delicate child; had never had chorea. Under promise of marriage she was seduced and became pregnant. It was noticed by her mistress that she avoided society, hid herself in the water-closet for an hour at a time, fell down stairs, and was seen on one occasion to throw her right arm up in the air with a violent rotatory movement. These symptoms of chorea steadily increased in intensity. Three days before her admission she was visited by her mother, who had learned for the first time of her pregnancy, and who rebuked her in the most bitter manner; soon after this the girl became violently convulsed, which convulsive movements continued till she was brought to the hospital. It is difficult to conceive a more melancholy spectacle than this poor creature presented. Every part of the body was in violent agitation; she was unable to walk, and when laid on the bed was jerked about in the most violent manner, requiring the constant attendance of assistants to prevent her from being tossed out of bed. The features of the face were in violent motion, the eyes constantly wandering to and fro, her body covered with bruises, unable to articulate except in syllables; she still retained her reason, and as well as she could implored relief from us. She was placed in a warm bath, the bowels were freely moved, and an anodyne enema given, but both this and a subsequent injection of assafœtida were imperfectly retained, in consequence of the constant jactitation from which she suffered. A small blister was next applied to the back of the neck, and dressed with one grain of acetate of morphia. This last somewhat mitigated the violence of the muscular movements, but they soon returned with frightful violence. Next morning the gradual inhalation of ether was resorted to. Under the influence of this she slept quietly for two hours. On awakening she was seized with convulsions of the most terrific kind, and she died soon after. Up to this time the pregnancy had been denied by both her mother and as far as possible by herself. Permission to make an autopsy at the hospital was refused; it was subsequently obtained at her mother's house, but was obliged to be done in a hurried manner. I have learned from my friend, Dr. Livezey, the house physician, to whom I am much indebted for notes both of this and the following case, that "the brain was found very much congested throughout; the heart small and firm, with a bead-like deposit on the aortic valves. The spinal cord was not examined. The uterine was found to contain a fœtus of about six months."

In little more than a fortnight after the death of this poor girl, another case of chorea with pregnancy presented itself at the hospital.

CASE III. Chorea associated with Pregnancy; Recovery.—M. A., married, æt. 17, was admitted into the hospital, June 16, 1860. She stated that she had always been nervous, and had had an attack of chorea about a year ago, which was but slight. Had been pregnant for three months before her admission to the hospital. Up to the time of this attack, about two weeks since, she had been well, though very nervous. At this time she was frightened, and about an hour afterwards found she had twitching of the arms and legs, which had increased up to this time. When received, there were decided, though not violent, movements of the upper and lower extremities. Her tongue was clean, bowels regular, pulse eighty, and rather feeble. After a warm bath, she was ordered to take ext. belladonnæ gr. $\frac{1}{4}$; pil. ferri carb. gr. ij, t. d.; and to have a bath with sulphuret of potassium daily. A slight amelioration in her symptoms took place, but on the 3d of July they were so severe that, in consultation with my colleague, Dr. J. F. Meigs, it

was determined to substitute for the iron and belladonna, *precipitated sulphuret of antimony gr. $\frac{1}{4}$* , and *Dover's powder gr. ij*, every two hours. Although our patient slept better the next night, her condition did not improve, and three days later she was decidedly worse, so much so as to render assistants necessary to keep her from falling out of bed. At the next consultation it was determined to abandon the antimony, and to give her the *subcarbonate of iron* in teaspoonful doses three times daily, and an *injection of laudanum (sixty drops)* twice daily. This last gave her a good night's rest, so that she was much quieter next day. This treatment was continued for several days, occasionally giving a purge of compound powder of jalap. The amendment was steady, the opium was gradually withdrawn, and she returned to her home, having for a week before been free from any choreic movements. She was subsequently safely delivered of a dead child, and has had no return of her chorea.

There are one or two points of interest in these last cases which may be briefly referred to. It will be noticed that in both conception took place at an early age—sixteen years; that in all three there were moral causes conjoined with the uterine irritation, which may have co-operated with this latter cause, viz., in the first, the sudden death of a beloved physician; in the second, the disgrace of seduction; in the third, a sudden fright. In but one had chorea previously existed, and in that but slightly. It never happened to me to see these patients asleep, but I am assured by the house physician, that the choreic movements, though mitigated, did not cease during sleep. Abortion was under consideration in the last case, but fortunately was not required. In the fatal case, the pregnancy, though not doubted by us, was steadily denied by the patient and her mother. Would premature labour have saved the poor creature from death?

The cases given by Duncan, and the first reported by the writer, may, perhaps, be regarded as cases of *partial chorea*. The limitation of this disease is, however, much more marked; thus West mentions twitchings of the muscles of the face, neck, mouth, and muscles of the right hand. A case is well known to Philadelphia physicians which manifests itself by paroxysms of violent rotatory movements of the right hand, and Dr. Babington reports a case of violent adduction and abduction of the stump of the left arm three months after amputation, no other part being affected. Cases are recorded in which the unnatural movements showed themselves by a continued propulsive, and others by a continued retrograde movement on the part of the person affected.

Among the many fanciful freaks of this disease, I may mention a case of chorea, coming under my notice while resident physician at the hospital, in which with a want of control over the muscular movements there was also a want of control over thought and utterance, so that one of our most distinguished physicians was usually greeted, on his entrance to the ward, with a salutation not suited to ears polite, to his own surprise and to the evident mortification of his patient.

Much attention has been called by authors to a peculiar form of chorea,

which consists chiefly in striking upon the knees with one or both hands. This has been named *malleation*. Others have described a peculiar rotatory movement of the head, or of the entire body. The most remarkable case of this kind on record is that by Dr. Robert Watt, in the *Medico-Chirurgical Transactions*, whose patient continued for a month turning round like a top. This case, with which the profession is familiar, is but a type of similar instances which I need not quote. Recently, Dr. Winn¹ relates a case of a child, nine years old, who, from infancy, had an uncontrollable rotatory movement of the body from left to right. In the same journal (p. 623), a case is reported of a female child, three years old, who was frequently turning round in the cradle, for months together, from left to right, raising herself on her elbows and knees, and uttering a low moaning cry. I have referred to these cases because they nearly approach an affection closely allied to chorea, respecting which little has been written, and of which little seems to be known. I allude to the disease known as *Salaam Convulsions*, so called because of the peculiar and repeated bobbing of the head of persons thus affected, reminding one of the salaams of the East, or of the nodding of Chinese toys.

In the year 1850, while resident physician at the Pennsylvania Hospital, a case of this disease came under my notice. A little girl, between three and four years of age, was admitted for disease of the scalp (probably porrigo). She was a bright, intelligent child—unusually so for her age. Soon after her admission, she was found sitting up in bed nodding her head almost to her knees, uttering at the same time a low moaning cry as if putting her doll to sleep. It was ascertained that these movements were beyond her control, that they lasted from five to ten minutes, or in some attacks much longer; that they occurred in paroxysms, and that they varied very much in intensity. An attack would often be brought on by the visit of the house surgeon, when the little one would salute him in her pleasant way, with "Good morning to the doctor," repeated two or three times, and then be seized with this violent bobbing motion, lasting many minutes, during all which time she would continue humming her strange chant.

Under treatment, addressed to the disease for which she was admitted, attention to the bowels, and the use of tonics, she entirely recovered. Of her previous history I have no record. Through the kindness of Professor Pepper, I am permitted to refer to a similar disorder affecting an adult. A lady, who was suffering from uterine irritation, came under his care. At his first visit he noticed that she bowed very low, as if making a salutation. The bowing, however, continued, and had existed at intervals for months. Under the use of remedies addressed to her uterine disorder, and the exhibition of antispasmodics, valerian, &c., she entirely

¹ London Medical Times and Gazette, 1855, p. 532.

regained her health. So far as I am aware, attention was first called to this strange disease by Dr. W. J. West,¹ occurring, as it did, in his own child. It consisted, according to West, of repeated bobbings of the head forward, succeeded by an immediate return to the upright position. These bobbings were repeated at intervals of a few seconds, ten, twenty, or more times, lasting a few minutes. The affection is a rare one. Sir Astley Cooper had never seen a case of the kind before this one was brought to him. By Sir Charles Clarke, who had seen four cases, it was named *salaam convulsions*. Dr. Locock had seen but one other case. Dr. Barton,² of Village Green, Pa., reports the case of a little girl, ten years old, thus affected, in which the disease yielded promptly to purgatives. Dr. Bennett,³ of Danbury, Conn., records, curiously enough, like Dr. West, the case of his own son, in whom, after great suffering, the disease at last yielded to blisters twelve inches long on both sides of the spine. In both of these cases it was referred to irritation of the spinal meninges; in the latter directly, in the former indirectly, from fecal accumulations. Dr. P. H. Bird,⁴ referring to this rare disorder, quotes Dr. Newnham (*British Record of Obstetric Medicine*), Dr. Wiltshire (in a paper read before the Westminster Medical Society), and Dr. Faber (in *Schmidt's Jahrb.*, vol. lxxvii. p. 213), as having written on this subject.

Post-mortem investigations have failed to indicate any one organ as uniformly affected in chorea. In "a tabular notice of the morbid appearances in ten persons affected with chorea" (Hughes, *Guy's Hosp. Reports*, cit. supra), the cerebral meninges were more or less affected in six cases; the brain was soft in six; firm and healthy in one, normal in another, not examined in one. Serous, and in one instance sanguineous effusions were also noticed. In four of these cases the spinal marrow was examined; in one of them there were soft adhesions of the arachnoid, and the gray matter was dark. In another, the adhesions were old, vessels large and numerous; in a third, the medulla was softened; while in the fourth, there was nothing abnormal in this structure. In four of the same cases, there was evidence of pericardial inflammation of varying intensity. In two, the heart was found to be large; aortic disease existed in one, tricuspid in one, mitral in three: this last consisting either of mere thickening, or of delicate vegetations on the valves; in two instances the heart was found healthy. In most of these ten cases there existed congestion of the liver and other abdominal viscera. Effusion and cerebral softening are reported by Ingleby (*op. cit.*). Romberg (*op. cit.*) reports three fatal

¹ London Lancet, 1841, p. 724.

² Am. Journal of Medical Sciences, Jan. 1843, p. 243.

³ Ibid., April, 1843, p. 364.

⁴ Pract. Treatise on the Diseases of Children, &c., translated from the French of M. Bouchut, with notes and additions by Peter Hinckes Bird, F. R. S. E., &c. London, 1855.

cases, in two of which some softening of the brain was found after death, and in one proving fatal by peritonitis, the brain was healthy, but the upper portion of the spinal cord was softened. Softening of the brain is reported, in a fatal case, by Cruveilhier. Other pathologists have failed to find these appearances, and by most they are looked upon as coincidences rather than as characteristics of chorea. Those disposed to pursue this subject may find further illustrations in the writings of Bright, Serres, Ruz, Séé, Lee, Tanner, and others before quoted in this paper.

Respecting the frequency of chorea little need be here said, although on this subject very different opinions have been expressed. It would seem to be rare in warm climates; even the different portions of our own country seem to modify its frequency; thus, Dr. Dickson,¹ writing from South Carolina, states that it is a very rare disease. This certainly cannot be said of it in Philadelphia. I never pass a term of service in our hospital without having cases under care.² Dr. Babbington³ writes: "Not a week passes in which some cases of chorea are not presented for admission at most of our hospitals. We had nine cases in the clinical ward of Guy's Hospital alone, during the past season, and every practitioner of experience has seen more chorea patients than he is able to estimate by precise numbers." My own observation would lead me to the conviction that though of frequent occurrence in hospital practice it is rare with us in private practice, especially among the better classes, a statement which cannot be made of many nervous diseases.⁴

In the treatment of chorea much empiricism has prevailed, and the list of the remedies which have been resorted to is a large one. Instead of enumerating them, I cannot do better than refer the reader to the admirable summary of M. Valleix.⁵

With the views already expressed respecting the nature and causes of chorea, little more need be here said of its general pathology or treatment. Believing it to be the result of irritation, varying in its origin and mode of action, affecting a highly nervous organization, the great centres of

¹ Essays on Pathology and Therapeutics. By S. H. Dickson, M. D. Charleston, 1845.

² M. Ruz found, out of 32,976 children received in the Hospital des Enfants, 189 cases of chorea. Arch. Générales, iv. 239. Paris, 1834.

³ Guy's Hospital Reports, vol. iii. p. 417.

⁴ K. F. H. Marx, Professor in the University of Göttingen, in his report "On the Influence of Civilization in lessening the Number and Severity of Diseases," says of chorea: "Its decrease is to be expected with more certainty as medicine is constantly studying the changes of the human body, and education every day becoming more circumspect. Indeed cases of the disease are now rather rare."—*Brit. For. and Med.-Chir. Rev.*, vol. xviii. p. 237.

⁵ Guide du Médecin Practicien, &c., par F. L. I. Valleix, p. 668, tome quatrième. Paris, 1853.

which are found in the brain, its appendages, and the spinal marrow, the principles of treatment become obvious.

All specific medication is as uncertain as it is unscientific.

If the disorder be due to any great shock to the nervous system, to fright, for instance, acting on the suggestion of M. Guersent, we must endeavour to correct the excessive nervous sensibility which renders the child so easily disturbed. In the list of tonics and of antispasmodics recorded by Valleix, in the well-directed gymnastic exercises of M. Blache, we have the means most likely to prove efficient. If it be from toxæmia of any kind, that from retained or repressed secretions of the skin, the kidneys, or from rheumatism, we must resort to eliminatives to free the blood of its poisonous constituents. If it be due to a depraved condition of the blood, the result of vicious habits, of exhausting discharges, of protracted illness, or even of too rapid growth, we must correct this condition by remedies addressed to the invigoration of the system, by nutritious, easily assimilable food. Here too with particular advantage we may resort to the chalybeates of Elliottson, carefully avoiding all exhausting purgatives or other debilitating measures. If, on the other hand, it coexist with a highly sthenic or even plethoric condition, the opposite course of treatment would be required, and antimony in large or in small doses, or perhaps even the lancet, as recommended by Sydenham, would be called for. If the cause be local, seated for example in the alimentary canal, whether in the form of intestinal worms or of accumulated feces, free purgation becomes necessary, and here the treatment of Hamilton would be invaluable. If the constipation be due to a paralytic condition of the bowel, or if there be a general debility of the muscular system, *nux vomica* may impart tone to that structure, and here the sulphate of strychnia of M. Trousseau would be found beneficial. If the local irritation be in any way connected with dentition, the mode of treatment would be at once obvious. If the disorder be referable to uterine irritation in its various phases, we must adapt our remedies to the nature and cause of this irritation. Amenorrhœa and menorrhagia would each have its own appropriate treatment. If the chorea result from incurable organic disease in the uterus, or elsewhere, although the cause be irremovable, we can at least mitigate the sufferings of our patient, and perhaps, by the exhibition of opium or of belladonna, render the nerve centres less susceptible to the irremovable cause of irritation. If the source of the irritation be found in the physiological function of the pregnant uterus, we may do much for our patient by moral and by physical agencies. In the cases I have reported there has been expressed my estimate of the value of opium in this form of chorea, as it has been long ago found useful by Armstrong and others in chorea arising from other causes. I recur to this subject because I wish to state my conviction of the advantages to be derived from its local as well as its constitutional effects; in other words, to say that I believe much more will be gained by the use of *laudanum*

enemata than by the exhibition of the opiate by the mouth. I cannot but believe that not only is the system brought under its influence, but that a local anaesthesia is thus speedily induced, which is of itself of great benefit.¹ Were another case of chorea with pregnancy to present itself to me, I should, after the bowels had been moved by gentle laxatives (not by drastic purges, which are themselves irritants), resort to injections of laudanum, repeated sufficiently often to keep the system under their influence, and continued until the system had become accustomed to the cause of the irritation, or the diseased habit overcome. Of course the existence of great cerebral congestion would contraindicate the free use of opium, while, on the other hand, this treatment need not interfere with the exhibition of medicines likely to improve the general tone of the system, the preparations of iron or other tonics.

PHILADELPHIA, February 13, 1861.

ART. III.—*On the Antagonistic Effects of Opium and the Mydriatics, Illustrated by Cases of Poisoning in the Human Subject.* By CHAS. CARROLL LEE, M. D., Resident Physician to the Pennsylvania Hospital.

ON the 3d of September, 1861, three well-marked cases of poisoning by stramonium seeds were admitted to the Pennsylvania Hospital. One was a man, aged 31, the other two were women, aged respectively 34 and 58 years.

The history of the accident was as follows: The two women were about moving into a new house, and the man was assisting them with their furniture, when, in passing an unoccupied room, he saw in an open closet a bottle filled with what he supposed to be brandy. He poured out a cupful, drank it, and offered some to the women, who both drank of it—the elder about a gill, and the younger only one or two mouthfuls. A child of the latter was also given a little of the mixture, and it was in this case that the effects of the poison were first noticed. Within four or five minutes after taking the draught, the child became violently flushed in the face, the eyes glittered and rolled about, and it tottered so as almost to fall from its chair. This alarmed the mother, who at once supposed they had taken poison, and, though already giddy and half blind, she managed to run with the bottle to a neighbouring druggist, who confirmed her suspicions. With

¹ One reason why enemata of laudanum are not more relied on in the treatment of disease, is the fact that, as usually given, the amount of liquid (fʒij of starch water) is too large to be retained. Excepting in cases of rectal inflammation, it is much better to use but *half an ounce of tepid water*, which is rarely rejected, and acts promptly.

much difficulty she again reached her house, where she found the other woman and the man lying speechless on the floor; and, as their friends who crowded around them could afford no assistance, the three were put into a wagon, and driven without further delay to the hospital.

The bottle, which contained a number of small, black, kidney-shaped seeds, and a little whiskey, was brought with them, and, as soon as examined, the seeds were pronounced *stramonium*. This was confirmed by the appearance of the patients, which was very striking.

The man and the elder woman were nearly comatose, their faces flushed to an almost violet hue, the conjunctivæ injected, and the pupils were insensible to light, and so strongly dilated, as to leave visible merely a rim of iris; the skin of the face and upper extremities was burning hot, the tongue and throat parched and dry, respiration slow and laboured, pulse 100, and very tense and full.

The younger woman had taken a smaller dose of the poison than the others, and had reached only the maniacal stage of its influence; the skin was scarlet and burning hot, and the mydriasis as marked as in the other cases, the tongue parched, intense thirst, but no constriction of the fauces on swallowing; the respiration, however, was hurried, the pulse fluttering, and beating 140 to the minute. The patient was violently delirious, resembling, in a marked degree, the most excited stage of *delirium tremens*, struggling to get out of bed, and continually rolling from side to side; she was unable to stand by herself, and, unless supported, fell forward to the ground. When her hands were not restrained, it was observed that she pursued imaginary objects in the air, or picked at the bedclothes, as in the delirium of typhoid fever. No frothing at the mouth, or relaxation of the sphincters, said by Taylor to characterize poisoning by stramonium and belladonna, occurred.

Treatment.—As neither of the women had vomited since drinking the poison, I first resorted to the stomach-pump, which, with the assistance of my colleagues, was used freely. About a pint of thin, dark-brownish liquid was pumped up, and carefully examined, but contained no seeds. The stomach was then washed out with tepid water, but no seeds were obtained. The symptoms being in all respects similar to those of poisoning by belladonna, an antidote to that narcotic, on which I place entire reliance, was next administered, viz.: *Opium* in doses sufficient to secure a full opiate impression, as indicated by contraction of the pupil. Forty drops of laudanum were immediately ordered to each of the women, and having at hand some of Magendie's Solution of Morphia—in this hospital only used for hypodermic injections—I gave them fifteen minims apiece, holding in solution a half grain of the salt, every half hour, until each had taken two grains.

As considerable debility had been induced by their struggles when the stomach-tube was used, a half ounce of brandy was added to each dose of

the morphia; this was deemed the more necessary because, notwithstanding the well-known stimulating effect of stramonium in the first stage, this period had already passed. The result justified our expectations; for in two hours the pulse of the younger woman had fallen to 90 beats per minute. This patient was now nearly well, and the other woman in a fair way of recovery; the morphia was therefore diminished to a quarter of a grain every hour, with an ounce of wine instead of brandy; this was continued through the night, and the following day the women were discharged from the hospital cured.

The man exhibited much the same symptoms as the women, catching and striking at imaginary objects around him, but the retina was insensible to light, for a hand passed close in front of the eye failed to make him wink, unless the cornea was touched; he was also more comatose at first, and with a more feeble and rapid pulse—150 per minute. Another alarming symptom was an apparent somnolency, which, according to some authors, marks only the worst cases. Thus, Dr. Stillé says: “At no period in the progress of the symptoms, *until death grows imminent*, is there the least tendency to sleep; on the contrary, there is an obstinate insomnia; and yet, on the recovery of the patient, he retains no distinct recollection of what has occurred.”¹

Before leaving home he had been given two or three emetics, which had acted very freely; the stomach-pump was therefore not used, and he was at once ordered forty drops of laudanum, to be repeated in ten minutes, after which he was given a half grain of muriate of morphia every half hour, until three and a half grains of the salt had been taken—a larger amount than in the other cases, as he had imbibed a much larger dose of the poison; this, with ice to the head, constituted his entire treatment. He rallied during the night, slept a little, and the next morning was able to walk, and read large type. Some abnormal dilatation of the pupil and vertigo remained, however, during the day; by evening he was quite well.

The effect of the morphia was equally evident in each of the foregoing cases. They had been brought to the hospital and subjected to treatment about an hour and a half after the poison was swallowed; within an hour after the first administration of the antidote—for such, I think, it may justly be considered—a decided amelioration of all the symptoms, especially of the mydriasis, was perceptible; while in three hours, the mildest case was quite well, and the other two so much improved as to excite no further uneasiness. That this improvement was not due merely to the stomach-pump or emetics is apparent, from the fact that the man, who had vomited profusely, presented the most alarming symptoms of debility and coma; while in the case of both the women, the fluid obtained through the stomach-tube resembled rather the ordinary contents of the stomach than the stramonium mixture.

¹ Therapeutics and Mat. Med., ii. 55.

There was every probability, indeed, that the small amount swallowed—and the concentrated strength of the mixture may be inferred from its effects—had been absorbed before the evacuants were used.

As corroborative of the results obtained in the preceding cases, and as further illustrative of the *mutual antagonistic influence* of opium and belladonna, a brief description of two other cases that occurred to me while Resident Physician in the Philadelphia Hospital, Blockley, may not prove uninteresting.

The first, a child, aged six years, had been given, in mistake for syrup of rhubarb, a drachm of *succus belladonnæ*, an unofficial preparation, very concentrated, and only used in collyria. The characteristic symptoms of belladonna poisoning were almost immediately apparent; the child's face became scarlet, and it tottered and fell insensible to the floor. I was instantly sent for, and found the flush on the face deepening to a violet hue, the eyes fixed and staring, the pupils dilated to the utmost, tongue dry, pulse slow and bounding, and the child almost comatose. No stomach-pump was at hand, and I at once resolved to test the effect of opium. Twenty drops of laudanum by the mouth, and the same amount by the rectum, were simultaneously given, and at intervals of a half hour the dose of twenty drops was repeated, until the little patient had taken 120 drops in all. After the third dose the pupils began strongly to contract, the purple hue of face to fade, and in three hours the child was well, and running about the room.

The second case alluded to was, on the contrary, one of opium poisoning, occurring in a child aged two years. The quantity of laudanum taken could not be ascertained, for the mother who had given the drug (as was supposed for the purpose of infanticide), obstinately refused to answer any question on the subject.

Enough, however, had been swallowed to render a fatal prognosis almost positive. The skin was pale, cold, and clammy, pulse feeble, and beating only forty to the minute, respiration slow and laborious, pupils excessively contracted, and coma profound. A galvanic battery was sent for, but when obtained, was so out of order as to be useless.

Some tincture of belladonna, however, was at hand, and was instantly given in doses of fifteen minims, repeated at intervals of twenty minutes, until four doses were taken. The first perceptible change was after the second dose, when the temperature of the skin rose several degrees; this was gradual, but was distinctly felt by the hand.

A few minutes after the third dose of belladonna the eyes were carefully examined, and the pupils, although still contracted, were no longer insensible to light; the skin was much warmer, and a faint blush appeared on the face and neck; respiration twenty-five, pulse eighty-six per minute. When spoken to, the child now opened its eyes, and showed signs of intelligence; but, as some drowsiness yet remained, the fourth and last dose

of belladonna was given, at the same interval as before. Its effect was rather more rapid and striking than was desired; for in a few minutes after taking it, the child's face, neck, and arms became flushed as red as in the scarlatinal eruption, and the pupils dilated much beyond their proper size. The child started up in bed, shouted and laughed immoderately, and, in fact, exhibited every sign of the first stage of belladonna intoxication. Not wishing to substitute one poison for another, I now stopped the belladonna, and in less than an hour the scarlet blush was imperceptible, the pupils contracted and dilated regularly, and the child was to all appearances well; no vomiting or other disagreeable sequela occurred.

These two cases were typical ones of their kind. They were both strongly marked—the first dangerous, the latter almost hopeless; in both the antidotal effects of opium and belladonna were fairly and honestly tested; and, although a general conclusion cannot be drawn from isolated cases, a careful consideration of the phenomena will warrant the inference—1st, that the poisonous symptoms were promptly subdued by the remedy administered; and, 2d, that the antidote was safely given in doses which would have been surely fatal in health.

The knowledge of the antidotal powers of belladonna in cases of opium poisoning is not of very recent date. Dr. Graves first suggested that, in continued fever, with coma and contracted pupils, if an agent could be found to overcome the latter symptom, it might also relieve the other signs of cerebral derangement; and for several years past, cases analogous to the preceding have been reported in the journals. The first paper bearing directly on this point, with which I am acquainted, was read by Dr. Thos. Anderson, before the Physiological Society of Edinburgh, in Jan. 1854. He relates two well-marked cases of poisoning; the first by an overdose of muriate of morphia, which was cured by six drachms of tincture of belladonna. The second, an elderly woman, had taken five drachms of laudanum for self-destruction. The stomach-pump, electricity, and other measures were tried without effect, when Dr. Anderson resolved to administer the tincture of belladonna. He gave an ounce on the spot, and within the next half hour two drachms more. In five hours, all indications of opium poisoning had disappeared.¹

Again, Dr. Mussey, of Cincinnati, reports a case of poisoning by an ounce of laudanum, in which, five hours after it had been swallowed, he gave first the extract, then the tincture of belladonna, until seven grains of the former, and one ounce of the latter were taken. Recovery was prompt and complete, without any of the peculiar effects of belladonna, except indistinct vision for a few hours.²

On the other hand, Mr. Bell, of Edinburgh, records two cases in which

¹ Monthly Journal of Med. Sciences, April, 1854.

² Boston Med. and Surg. Journal, February, 1856.

large quantities of morphia quickly subdued alarming symptoms of poisoning by hypodermic injections of atropia;¹ and I may add that, within the last six months, two others, precisely similar, have come under my notice, in this Hospital. In these, the poisonous impression was produced by injecting respectively the one-thirtieth and the one-thirty-fifth of a grain of sulphate of atropia.

Mr. Seaton, of Leeds, has related the history of ten persons who were poisoned by the berries of the atropa belladonna. In two of these cases the effects were slight, and required only an emetic. In the other eight the symptoms were alarming and well marked, especially wakefulness and active delirium. Opium was given to all; and in seven of the worst cases, the symptoms disappeared as soon as sleep and contraction of the pupil indicated its influence on the system. The eighth patient, who was a scrofulous woman, long out of health, took but little opium, and died.² In the *London Medical Review*, for August, 1860, there is a most interesting paper on the Significance of the Effects of Opium and Belladonna on the Pupil, by Richard Hughes, Esq., of Brighton. He discusses with much ability the relative and antagonistic effects of the pure narcotics and the mydriatics, and adduces numerous cases corroborative of the foregoing.

Dr. Lopez, of Mobile, describes the case of an apothecary, at the Marine Hospital, who poisoned himself by the application of a large belladonna plaster to the knee, after the cuticle had been removed; there existed nausea, giddiness, mydriasis, and extreme prostration. Having frequently tested the reciprocal influence of opium and belladonna, Dr. Lopez at once prescribed a drachm of laudanum, to be followed by fifteen drops every half hour until the symptoms abated. The first dose sufficed to antagonize the belladonna in thirty minutes.³

M. Brown-Séquard, while admitting that belladonna and opium have some properties diametrically opposed—thus, for instance, belladonna contracts the vessels of the spinal marrow, and opium, like strychnia, paralyzes them—says that in animals poisoned by opium, belladonna excited no influence, that he could observe, on the fatal symptoms. He further alludes to a case of poisoning by opium and belladonna taken simultaneously, and infers that their employment as mutual antidotes is nugatory.⁴

But unfortunately for these objections, no correct conclusion can be drawn from experiments made on the lower animals, as they are variously affected by narcotics. Thus, Dr. Anderson has given to cats and dogs enormous doses of morphia, without producing any appreciable effect; and to them five and six grains of atropia proved quite harmless. Rabbits will feed for months on belladonna leaves and have their pupils dilated all the

¹ Edinburgh Med. Journal, July, 1858.

² Med. Times and Gaz., Dec. 3, 1859.

³ North Amer. Med.-Chir. Rev., Jan. 1860.

⁴ Journal de Physiologie, Oct. 1860, p. 726.

time, but otherwise they are not affected. Blackbirds eat belladonna berries in large quantities, and do not die. It is, therefore, only to experiments on man that any value can be attached.¹ As no description is given by M. Brown-Séquard, of his last-mentioned case, it is impossible to accord it due weight in the scale; for aught we know, a large amount of opium and a small quantity of belladonna, or *vice versa*, may have been taken.

In commenting on the influence of belladonna in the various forms of paraplegia, the same author denies that it is a stimulant to the nerve centres, and remarks as follows: "We will not speak here of its action on the brain: but as regards the spinal cord and spinal nerves, belladonna, far from being a stimulant, acts in diminishing the vital properties of these organs. As we have already said, belladonna is a powerful excitant of the bloodvessels, and especially of those of the spinal cord and its membranes. In consequence of this influence it diminishes the amount of blood in the vertebral canal, and, in so doing, produces a relative diminution of the vital properties of the spinal cord and its nerves. It is, therefore, in those cases, in which these vital properties are increased, that belladonna should be employed."²

Without at all calling in question M. Brown-Séquard's views on the physiological effect of belladonna, which, we must take for granted, are based upon accurate experimentation, I think the cases I have already adduced (and others might be presented by the dozen were it necessary) are sufficient to establish an undeniable antagonism between opium and belladonna. To what extent this antagonism exists, or whether its ground is the vascular rather than the nervous system, are points that I am neither prepared nor inclined to discuss. In his work on Epilepsy, as well as in the extract just given, M. Brown-Séquard has stated contraction of the capillaries to be the uniform effect of the internal administration of belladonna; and Mr. Wharton Jones, in his Prize Essay on Inflammation, finds that the application of a solution of sulphate of atropia to the small arteries causes constriction of their calibre, while opium largely and at once dilates them; yet no one can doubt that this is through their influence on the sympathetic, which is the motor nerve of the bloodvessels.

Our knowledge of the ultimate effects of medicines is, however, still in its infancy, and well aware that even acute and experienced observers are apt to stumble in this field of inquiry, I have endeavoured to confine myself strictly to facts. These may, perhaps, have been misinterpreted throughout; but I have presented them for what they are worth, in the hope that they may contribute, in some degree, to illustrate so important a subject as the toxicology of the narcotics.

¹ Edinburgh Med. Journ., June, 1860, p. 1100.

² Lancet, December 22, 1860, p. 605.

³ Guy's Hospital Reports for 1850, pp. 8, 9.

ART. IV.—*Cases of Penetrating Wounds of the Chest and Throat, illustrating some important Practical Points.* By JOHN ASHHURST, Jr., M. D., Resident Surgeon to Pennsylvania Hospital.

THERE is perhaps no class of wounds more deceptive in their results than those of the chest. A frightful gash, with the air blowing in and out at every respiration, will sometimes heal in a few days, and without a single bad symptom; while, on the other hand, a small, hardly perceptible puncture, unattended by hemorrhage or other evidence of danger, may in a short time prove the cause of the most serious and even fatal consequences.

In former times very indefinite ideas were entertained by medical men as to the symptoms of chest wounds, and their prognosis. Immediate coughing up of blood was regarded as pathognomonic of wound of the lung; John Bell declares of the instructed surgeon, that "if the patient spits blood, he fears a wound of the lung; if there be an emphysema, he is sure of it;" whereas, in fact, a wound of the lung may be accompanied by no hæmoptysis whatever, and emphysema very frequently exists without any pulmonary lesion. The following case will illustrate this point.

Daniel L.—, aged 45 years, was admitted into the Pennsylvania Hospital on the 8th of October, 1861, about quarter past nine o'clock in the evening, with incised wounds of the chest, and of the scalp. The scalp wound, which was between three and four inches long, was situated on the right side of the head, and bled most profusely, the posterior auricular artery of that side being fairly divided; the wound was dressed with gauze and collodion, and the hemorrhage arrested by a compress and firm bandage.

The wound of the chest was upon the left side, about an inch and a half below, and two and a half inches to the left of the nipple. The wound was about an inch and a quarter long, and apparently made by a sharp-pointed instrument.

There was a good deal of emphysema about the wound, spreading up the chest, and around to the back. The air was forcibly drawn in and blown out with a rushing noise at each respiration. There was some evidence of shock; the pulse 78 in the minute, but feeble, and the respiration twenty to the minute. There was much anxiety of breathing.

Here now were three symptoms well marked, any one of which is generally considered diagnostic of lung wound, viz., dyspnœa, emphysema, and tromatopnœa; and yet from the further history of this case it will, I think, appear that the lung was entirely unharmed.

The wound was closed by several points of lead suture, and a compress and bandage placed on it, and not removed until the sixth day. Two hours after admission the patient had reacted; the skin was warmer, and the pulse fuller; the breathing more easy. The respiration on the wounded side was somewhat feeble, but beyond this auscultation and percussion revealed nothing abnormal about his lungs.

Absolute diet and perfect rest were enjoined, and this constituted the treatment.

On the 14th, six days after his admission, the compress was removed, and the wound found healed through nearly all its extent, one or two drachms of pus being discharged from the upper angle. A lime-water dressing was now applied, and the diet changed for one more nutritious than had at first been permitted. No bad symptoms presented themselves, both the dyspnoea and the emphysema having spontaneously disappeared. On the 19th of October he was allowed to get up; the scalp wound was now entirely healed, and of the chest wound, but a point of ulceration remained. He was discharged, cured, on the 28th, the whole treatment having occupied but twenty days.

Now, in this case, the lung certainly could not have been wounded, or the recovery—if recovery had taken place—would have been more tardy. Here was a penetrating wound of the chest, with symptoms such as to cause the most serious apprehensions, and yet in the short space of eleven days the man was walking about, and to all intents perfectly well.

Gunshot wounds of the chest are generally more dangerous than stabs, as they are more likely to affect the deep-seated viscera, yet cases are on record where a ball has passed completely around, subcutaneously, without opening the thoracic cavity. Hennen met with two cases in which the ball passed between the costal pleura and the lung, making one-half the circuit of the chest, and yet not penetrating the lung; and, still more surprising, he mentions a case in which “the ball, which struck about the *Pomum Adami*, was found lying in the very orifice at which it had entered, having gone completely round the neck, and being prevented from passing out by the elasticity and toughness of the skin which confined it to this circular course.”

In the following case of gunshot wound of the lung, such a circular course was at first supposed, and a favourable result was accordingly hoped for; but the autopsy revealed that, in this instance, such a fortunate deflection had not occurred.

Mary A—, aged thirteen, was admitted into the women's surgical ward about seven o'clock in the evening of July 10th, 1861, with a gunshot wound of the chest. While sitting in the yard back of her father's house she was struck by a ball from a toy cannon, fired in the adjacent yard. There was found a compound comminuted fracture of the left clavicle about an inch and a half from its sternal end. The ball was found by the attending surgeon (who happened to be in the house at the time), posteriorly, lodged beneath the trapezius muscle, between the third and fourth ribs. It was immediately removed by a counter opening.

The symptoms of constitutional disturbance were so slight, and the general condition of the patient was so good, that it was supposed that the ball, after striking the clavicle, had been deflected in an upward direction, and, coursing along in a curved line, had found its place beneath the trapezius without wounding the lung. The case was attended by Dr. Goodman, and afterwards by Dr. Livezey, and I did not see it again, except casually.

Symptoms of pleuro-pneumonia showed themselves on the 19th, nine days after admission, and a fatal issue ensued on the morning of the 22d.

An *autopsy* was made six hours after death with the following results. There was a compound comminuted fracture of the left clavicle, with a spicula of bone penetrating the pleural cavity, and entering the apex of the lung, which was adherent at this point. The apex was in a state of congestion, hardly amounting to red hepatization, and, on making an incision, a clot was found in the lung, and the track of the ball well marked. The left pleural cavity was about half full of bloody serum, of which one and a half pints were removed. The lung was compressed against the vertebral column, and the heart pushed to the right side. Both pleural surfaces were covered with lymph. All the other organs which were examined appeared healthy.

In connection with wounds of the lung, I may refer to a case not strictly pertaining to this category, but of sufficient intrinsic interest to authorize my recording it in this place.

Richard F——, aged thirty, was admitted on the 23d of October, 1861, about nine in the morning, with an incised wound of the throat. While labouring under incipient mania-à-potu, the man had, with an ordinary table-knife, inflicted upon himself a most frightful gash. There were two wounds, one small and superficial on the right side of the throat, while the larger, which had an extent of fully five inches, was directly in front. The knife had completely divided the cricoid from the thyroid cartilage, going back to the anterior wall of the pharynx; the superior thyroid artery of the right side was divided, and bled freely; the sterno-cleido-mastoid muscles on either side were exposed, but neither the carotid arteries nor the jugular veins were injured.

The larynx above the cut was filled with clots, and clots and liquid blood mingled with mucus, were frequently coughed up from the trachea; the pulse was feeble, and the skin cold. A silver tube, such as used after the operation for tracheotomy, was introduced, a ligature placed upon the bleeding superior thyroid artery, and the wound closed by points of lead suture. As any effort at swallowing was followed by violent and frightful spasms of coughing, the patient was stimulated by heat to the feet, a sinapism to the abdomen, and enemata of brandy.

Between twelve and one o'clock he appeared moribund, his face covered with a cold sweat, and presenting all the evidences of approaching collapse. Under the treatment, however, he began to improve, and by three o'clock reaction was fully established, and he breathed easily through the tube. The expectoration of clots had also now ceased, and in a few hours more he was able to swallow without difficulty. Stimulation was now suspended, and arrowroot was directed to be given during the night, in quantities of a teaspoonful at a time.

No change was now perceived until about 11½ P. M., when he made an effort to rise in bed, which being prevented by the person in attendance, he was shortly after seized with dyspnoea, and died about ten minutes before midnight.

An *autopsy* was made seven hours after death, at which it was found that the larynx and trachea were perfectly healthy, but the bronchi filled with a frothy mucus, very slightly tinged with red; the lungs were healthy; the liver slightly enlarged and fatty. A microscopic examination

of a portion of the aorta made by my friend Dr. William F. Norris, revealed incipient fatty degeneration in this locality also.

This case affords an exception to the usual rule that wounds of the throat, not involving any large vessels, recover. Here the hemorrhage was entirely from small vessels, most of them so small that they could not be tied, and yet death resulted; not, however, from the hemorrhage, for the parts were found dry at the time of death, and there were no clots in the air-passages, but from the effusion, consequent upon the irritation, which the bleeding immediately following the injury produced.

One of the most frightful-looking wounds I have ever seen, and yet which proved perfectly innocuous, was a penetrating wound of the anterior mediastinal space.

The patient was admitted on the afternoon of Sept. 17th, 1861, with a large incised wound opening this cavity, and attended with considerable hemorrhage, probably from the mediastinal artery. The edges of the wound were brought together with lead wire, a large compress and firm bandage applied, and absolute diet and perfect rest enjoined. With the exception of a slight local pleurisy, not a bad symptom was presented; and the patient left the house well on the ninth day after the injury, the wound having united literally by the first intention.

Wounds of the heart were in old times considered inevitably and instantly fatal. Numerous recorded instances, however, have shown that life may be prolonged almost indefinitely, and that a recovery is far from impossible in wounds which at first appear very unpromising. Ambrose Paré knew that heart wounds were not always immediately fatal. Haller mentions a needle found in the heart of an ox. Fournier gives a case in which a ball was found in the right ventricle of the heart of a soldier, six years after he had received the wound. Chastenet knew a case in which the right ventricle was pierced by a bayonet, and yet life was maintained for fifteen days. Ferrus, quoted by Erichsen, mentions a case in which a man lived twenty days with a skewer traversing the heart from side to side. Nélaton saw a case in which a stab in the heart was not followed by death until the fourth day. Numerous other cases will be found referred to in the No. of this Journal for August, 1829, pp. 307-314.

The following case is of considerable interest, as adding another instance to what must be looked upon more as curiosities of surgical practice, than as furnishing much available instruction for therapeutical improvement.

Charles R—, coloured, was admitted to the North-house ward of the Pennsylvania Hospital on the evening of Friday, May 31, 1861, with an incised wound of the breast on the left side, which bled most profusely. It was dressed in the usual manner with a compress and bandage, the patient confined to bed and placed on an absolute diet. I first saw the case on the subsequent Monday, being the third of June, and the third day after the injury. At this time there was marked dyspnoea, and evidence of effusion into the pleural cavity. On the afternoon of the following day, the patient was much more comfortable. There was hardly any dyspnoea, and the inexperienced observer would certainly have prognosticated a more

favourable condition. At six o'clock the next morning the boy was dead. An autopsy was made nine hours subsequently with these results.

There was an incision on the left side of the breast, in a line with, and two inches below, the nipple. The sixth costal cartilage was divided, and the wound extended into the thorax, penetrating the pericardium and apex of the heart, and opening the left ventricle. There was also a small punctured wound in the base of the upper lobe of the left lung. The surface of the heart and the inner surface of the pericardium were extensively inflamed and thickened. There was also extensive pleurisy of the left side. The pleural cavity contained four and a half pints of bloody serum, and a small quantity of a similar fluid was obtained from the pericardial sac. Both lobes of the left lung were completely collapsed; the right lung was healthy.

From each of the five cases which I have recorded, may be derived some practical suggestions. From the first and fourth cases may be seen the advantage of not prematurely disturbing the original dressings; much harm is, I believe, done in this way. The young surgeon too often, under the delusion that he is manifesting a proper zeal, gratifies a hurtful curiosity to see how the wound looks, by continually renewing and disturbing the dressings, and thus does injury, and not benefit to his patient. In my first case it will be observed the wound, when once dressed, was not uncovered until the *sixth* day, and this I consider to have been the most important point in the treatment.

Another very important lesson which may be drawn from some of these cases, and especially from the last, is not to be deceived by the apparent amelioration of symptoms, which is but too often the immediate precursor of a fatal issue.

A cessation of dyspnœa, it must be remembered, may depend upon very different pathological conditions. It may be, and it is well for the patient when it is, from an absorption of effusion, and consequent disembarassment of the respiratory motions; but it may also arise from a total collapse of the lung, which then not admitting any air, of course the difficulty of breathing can exist no longer.

A favourable prognosis should, then, never be founded upon the cessation of dyspnœa alone; other symptoms must be taken into account, particularly the signs given by physical exploration of the chest. When these show that all is right within, then and then only are we justified in exciting new hopes in the minds of our patient and his friends. And generally in any wound of a cavity containing so many vital organs as the thorax, in view of the difficulty of diagnosing what is and what is not injured, the surgeon should be very careful in what he may say as to the prospects of the case. To be either too sanguine or too desponding, is a fault in the physician, and not unfrequently reacts most unfavourably on his patient.

In conclusion, the treatment in these cases should partake largely of the expectant character; and I think we owe much to Dr. Fraser for his excellent chapter on this subject. The barbarous mode of treatment by large

and continual bleedings may now be laid aside, and we shall no longer run the risk of what Marshall Hall quaintly calls "relieving the symptoms of reaction."

Quiet, rest, and low diet—these are the principal points to be attended to, when reaction (which should as much as possible be brought about by external stimulation) has fairly taken place. No routine treatment can be recommended beyond the hygienic measures above suggested; everything else must be adapted to the immediate exigencies of the occasion.

ART. V.—*Brief Account of Dysentery as it occurred at Fort Jefferson, Tortugas, Florida.* By J. F. HAMMOND, M. D., Surgeon U. S. A.

Dysentery, as it occurs here, is simple, sthenic. It commences with loss of appetite, constipation, pains in the abdomen, and frequent calls to stool without passing anything. This is succeeded by diarrhœa, which is followed by frequent discharges of light-coloured viscid mucus, or blood, accompanied by severe tenesmus, some excitation of the pulse, anorexia, absence of thirst, and general suppression of the secretions.

Heat is an important element among the causes of this disease.

The experiments of Vierordt show that not only the number and depth of the respirations decrease with the increase of the temperature, and thus indirectly lessen the absolute quantity of carbonic acid given off by the lungs, but, also, that the percentage amount of it is diminished. From which it may be inferred that high temperature influences the excretion of carbonic acid by the lungs in some other way than by diminishing the mechanical functions of respiration. Numerous observers have shown that carbonic acid and nitrogen and certain peculiar volatile matters, the retention of which by suppression might give rise to various morbid conditions, are exhaled by the skin. Lehmann says that less of the gases is exhaled by the skin when the perspiration is active. And it is known that the formation of bile is suspended by the exhaustive influences of high atmospheric temperature.

Retention, in the blood, of deleterious secretions, may destroy the vitality of its fibrin. Whilst cytogenesis, the organic properties of simple membrane, the functions of the cells, and the metamorphosis and repair of the molecules of the tissues are impaired by an undue accumulation of carbonic acid, and the absence of oxygen.

No matter where dysentery may be thought to originate, there is no doubt that anatomical derangement of the fluids, or of the solids, will sooner or later be accompanied by disturbance in the nervous system. The

medium of the mobility of the organic forces, and by whose operation are exercised all the functions of the body, the nervous system derives its power from the development of cells. Influenced as readily as are any of the other cytological elements of the vital stimuli, wherever modifications in the latter cause perverted action in the one, they may also in the other. The manifestations of such an action varying according to the functions of the part affected. Atmospheric heat may cause irregular action in nerve power, even exhaust it for a time. So will malaria, and so will a vitiated pabulum. Its due action requires the blood to be depurated of its useless carbonic acid, and of other suppressed excretions and secretions and products of the decomposition of the body—to be in a state of extreme purity. Indeed, no action can take place in it without a supply of oxygenated blood. Though the organic actions are not *dependent* upon nervous agency, yet the nervous system is concerned in providing the conditions under which the functions of the contractile tissues are performed, has a direct operation in the changes constituting the functions of nutrition, secretion, &c. And the nerve force, itself generated by cell development, is in turn able to modify other principles of cell development. Hence derangements in the excretions and secretions, in this disease, are essentially connected with perverted nervous action, and tenesmus is due to reflex action.

Some pathologists maintain that the sole cause of the motion of the blood in the capillaries of the lungs is the respiration. The want of aëration retards the circulation in those capillaries. Carbonic acid is a narcotic. It may be retained in the blood by the action of atmospheric heat, independently of the diminution, by the latter, of the mechanical functions of respiration. It may act on the general system through the medium of the nerves, by being first introduced into the circulation of the blood. Thus, it may influence the functions of respiration and the pulse, and the mechanical functions of all the tissues, impeding the general circulation. Organic force is consumed and may be exhausted by exercise of the functions, general or local. Prolonged profuse secretion by the skin, from the action of high atmospheric temperature, is followed by prolonged suspension of that secretion. The sympathy between the skin and liver is such, that the secretions of the latter follow all the fluctuations of the secretions of the former; they are the increasing functions of each other. The suspension of a secretion implies torpor of the circulation in the capillaries of the organ from which it is due. The circulation through the portal vein, even in health, is more torpid than in any other part of the body, from the friction of the second capillary system through which it passes, in the liver, and from the absence of valves in the branches into which the portal vein discharges itself. Retention in the blood of the elements of the bile will obstruct the liver, causing hyperæmia. Thus, *a priori*, there must necessarily be congestion of the capillaries of the mu-

cons membrane of the chylopoietic viscera in dysentery under the circumstances in which it is found here.

The *diet* is, doubtless, a material cause of the disease here. The ration is well proportioned with reference to the bases of the metamorphosis of animal matter, and to the quantity, also, were it designed for use in a cold climate only. The proportion of the four groups of nutritious substances approximates that in human milk, but thirty-five ounces of dry nutritious matter is too much in latitude 24° . The ration in the English Navy allows about that quantity per diem for each man; but when little bodily exercise is required, and where there is less exposure to low temperature, it is considerably reduced in amount. In the work-houses in Scotland, where the inmates lead a comparatively inactive life, the allowance of dry nutriment is thirteen ounces of vegetable and four ounces of animal matter. And the diet-scales for paupers, in use in different parts of England, gives to each person daily eighteen ounces of dry nutriment, and they are found to work well; that is in latitude 53° and 56° . Varying requirements of the body from the effects of the different influences of the external world, changes in the condition of the organism from the varying activity of its functions, demand varieties in the composition and quantity of the food. Fat is the most objectionable element of the diet. It is not needed here for calorific purposes. Only a small quantity is required in the stomach, for digestive purposes; more than that impedes digestion by encasing each individual particle of food, rendering it proof against the digestive juices, and becomes rancid, forming volatile acids which may have a very deleterious action. Absorbed through the lacteals, it further embarrasses the liver, in this climate, and accumulating unduly in the blood it vitiates it. For all histological purposes a sufficient supply of it may be derived from the oils and *carbo-hydrates* of a purely vegetable diet. The general experience of the inhabitants of warm climates, is in favour of a diet chiefly or entirely vegetable, and a better change could not be made there than to assimilate it to that, by the substitution of fruits and farinacea for the oleaginous articles.

The *clothing* is too warm. It oppresses by its weight, and debilitates and predisposes to the disease by increasing the secretions from the skin and liver. A frockcoat and trousers of dark-blue cloth, over a thick flannel shirt and heavy cotton drawers, and coarse wool socks, weighing altogether six pounds and a half, is not suitable for this latitude, where the thermometer, during at least nine months of the year, ranges from 80° to 88° F. Light-blue flannel overclothes and thin cotton underclothes, weighing half as much, might be substituted with great advantage to the health and the comfort of the men. The Spanish soldiers at Havana are clad with linen pantaloons and jackets, and straw hats.

The exciting causes of the disease are discharges of acrid bile into the

intestine, illy digested food, and diet in a state of partial decomposition, all of which are incident to a tropical climate.

The indications for the treatment are, to induce a normal condition of the congested vessels of the chylipoietic viscera and liver, to restore the equilibrium of the circulation, and the integrity of the vital force, to heal the bowels, and to institute a system of hygiene to prevent the recurrence of the disease. To effect these objects the skin is kept thoroughly cleansed, the secretions generally are excited, the contents of the bowels are discharged, local lesions are remedied, and soothing and nutritious diet and proper exercise employed.

The patient is first well washed in a sea bath. Then he takes an emetic of ipecacuanha. When the vomiting has ceased, he is given a scruple of calomel, and eight hours after the latter, half an ounce of castor oil is administered. Should he, in the meantime, desire to eat, he is allowed boiled arrowroot, and if thirsty he drinks a mucilage. At the end of the first twenty-four hours he is in every way improved. The treatment the second day is commenced with a general cold bath. Hope's mixture is then given, or *mist. camphoræ* ℥ivss; *liq. ammo. acet.* ℥iij; *spts. æther. nit.* ℥iij; *potass. nit.* ℥ij; *syrupi limonis* ℥ij. *Fiat mist. ejus capiat cochlearia ij, larga, quarta quaque hora*, which is continued until the stools are feculent, or are changed from mucous to serous. This requires from twenty-four to forty-eight hours. Then, *R. Cretæ præp.* ℥j; *saponis, pulv. rhei, āā* ℥j; *hydrarg. cum creta* ℥ij; *olei anis. gtt. v*; *sacch. alb.* ℥ss; *tere bene simul.* *Capiat* ℥ss *ad* ℥j *ter die.* The general cold bath daily, and the arrowroot and mucilage are continued throughout the active treatment of the disease, and care is taken that the patient is not exposed to a current of air.

If there is tenesmus after the first twenty-four hours from the commencement of the treatment, an enema of *tinct. opii gtt. xxv*, in mucilage f℥j, is given and repeated every hour until it is relieved. Should there be tenderness on pressure in any part of the abdomen, cups, scarifying, are applied on the part, and repeated if necessary. If the case is prolonged without tenderness, the abdomen is covered with dry cups daily, or by a mustard cataplasm of ground mustard and water applied next to the skin for forty-five minutes, once or twice daily. If the case is obstinate and there is much tenesmus, an enema of four grains of nitrate of silver in two ounces of mucilage, increased to four grains to the ounce, is given daily.

As the patient convalesces he gradually resumes full diet, but is restricted from tea and coffee. And when he is returned to duty he is instructed to continue the general cold bath daily, to abstain from tea, coffee, and *all* drinks containing alcohol; from fat meat of every kind; to keep as much as possible out of the sun; to guard against being stationary in a current of air; and to walk at least three miles each day. It is very rarely that the gums are touched from this treatment, the recurrence of the disease in

the same person is very unusual, and the average duration of each case is less than four days (3.77 days).

MONTH.	RATIO PER 1000 OF MEAN STRENGTH.		Total Diseases.	Total Dysentery	Deaths.	Thermometer: Monthly mean.	Prevailing winds.
	All diseases.	Dysentery.					
June	45.4	101	94	21		84.55	N. E.
July	51.5	157	134	41		86.23	N. E.
August	35.5	84	101	24		83.77	N. E.
September	126	32	72	18		83.37	N. E., E.

FORT JEFFERSON, TORTUGAS, FLORIDA, 5th October, 1861.

ART. VI.—*On the "Æsthetics of Suicide."* By S. H. DICKSON, M. D., Prof. of the Practice of Medicine in Jefferson Medical College, Philadelphia.

IN the October number of *Winslow's Psychological Journal* appears an article with the above title—"The Æsthetics of Suicide," probably from the pen of the distinguished editor, an admitted authority upon this class of subjects. Ingeniously written, it is nevertheless unjust and injurious in its pervading suggestion of a relationship assumed to exist between the suicidal disposition in the mind, and a moral degeneracy in the character. This assumption I believe to be entirely unfounded.

The motives which induce to self-destruction, on the other hand, are often natural enough, even if weak and inconclusive; they are rarely vicious in themselves or depraved. It is the result, like all other forbidden and criminal acts, of undue emotion, of ungoverned passion. We do not always shrink from avowing our pity for the unhappy wretch who has committed the greatest atrocity; nay, we can sometimes so far enter into his feelings, his condition, his temptations, as to indulge a shuddering sympathy with him, which, while it does not excuse or defend him, palliates in a degree his apparent guilt. In the truly humane phrase of Burns—

"What's done, we partly may compute,
But know not what's resisted."

So, if we can detect or apprehend the course of thought, the current of oppressive infliction which have led the miserable suicide to his desperate act, we shall not fail, in numerous instances, to find reason for a mitigation of the harshness with which it is natural and perhaps proper to denounce the dreadful deed.

Among the infinitely varied forms of insanity, not the least common, surely, is the incapacity to estimate fairly and justly the true weight of

motive; and indeed this condition of mind seems to be the almost uniform precursor of suicide. Sentiments akin to virtue may, when exaggerated or distorted, betray us occasionally and lead us astray, as well as our vicious propensities. The histories of suicide afford us abundant examples in illustration of these views; the wonderful inconsistency of some, the strange fatuity of others, and in others still a mistaken purpose not altogether evil, are alike worthy of record. Thus we read in a Scotch journal of "a compositor on the *Iron Times* newspaper, who drowned himself last week because he could not perform a piece of tabular work satisfactorily." We are also told of "a ploughman at Shropland Hall, Essex, who cut his throat while at the plough because he could not run the furrow as straight as he wished." And in contradiction of the familiar but absurd notion that "he who does not fear death knows no other fear," we recall the case of the patient at St. Bartholomew's Hospital, who, in dread of the impending amputation of his leg, almost cut his head off with a razor, dying nearly instantaneously. Each one selects his own preferred method, seeming to shrink from any other, and even avoiding, with inconceivable fastidiousness, slight and trifling inconveniences or unaccustomed annoyances, in carrying out his stern purpose. Women rarely resort to gunpowder; men often. Yet Larrey declares that even these "suicidal maniacs scarcely ever renew the defeated attempt to kill themselves by fire-arms." Brierre also advances it "if not as an absolute, yet as a very general rule, that "individuals who have once endeavoured to shoot themselves will not repeat the attempt. Persons, on the other hand, frequently recur to the various other means which they have before uselessly employed." My note-book furnishes a case strongly in point:—

A German was found one afternoon suspended among the branches of a fig-tree on a vacant lot of one of our Southern cities. He was hanging, with his throat also cut inconsistently, breathing through the severed trachea, the vessels on each side of which were unhurt by his knife. Being taken down and carried to the hospital he recovered readily. This we were told was his fourth abortive attempt to get rid of his life; but about three months after he was more successful; making a fifth experiment he at last cut his throat effectually.

One of the earliest suicides coming within my personal notice was that of a gentleman universally esteemed and of irreproachable character who involved himself inextricably in debt by indorsing for a friend. As soon as he found that by the insolvency of his principal he was destined to pecuniary ruin, he filled his pockets with heavy weights, and contrived to fall—accidentally—into the water and drown himself. His body was recovered, and from some papers on his person it was ascertained that he committed the act in full persuasion that thus he became absolved from the obligation, and that his family would retain his property. Was this an act of heroic self-sacrifice, or of irresponsible lunacy, or a mortal sin?

A house-servant of my nearest neighbour was cursed with an unfaithful wife, and laughed at as a cuckold. Being detained very late one night by his master, he found, on reaching home, a rival with her, whom he attempted

to drive away; but being the weaker party he was defeated and beaten. Telling this to his fellow-servants next morning, he was bitterly taunted and ridiculed. Suddenly rising from his seat he ran up stairs declaring that he "would put an end to it." The report of a pistol being heard, he was quickly followed and found quite dead. I saw him immediately after, lying on his back upon the floor, with the left side of the thorax exposed and widely dilacerated. The skin was burnt for some inches around the open wound and his clothing scorched. The cavity was full of clotted blood and the heart seemed to have been torn to pieces by the explosion of the loaded weapon, a large horseman's pistol, which he had pressed firmly against his breast and fired. It had been fully charged with powder only and simply wadded: for there was no ball in the chest, nor any wound or perforation in the back or shoulder. Our condemnation of this poor wretch must surely be largely diluted with pity, and mingled with commiseration for his mental and bodily imbecility.

In the winter of 18— I had under my care a Mr. T——, a very handsome and agreeable young gentleman, a confidential clerk in a very large mercantile house. He was very much esteemed, and was on the point of being received as a partner in the firm, one of the most prosperous in our country. He was under engagement to be married to a lady residing at some distance. His character and habits were good; but in some unguarded frolic he had fallen—for the only time—into an imprudence that had rendered it necessary to postpone his wedding. He wrote sadly to announce this unhappy necessity, and the affair preyed heavily on his mind, producing a deep melancholy, increased doubtless by the solitude to which he was condemned; for it was the season of most active business, and his friends were all occupied day and night, leaving him alone in his chamber. On the very day on which he was to have been married, he received a letter in reply from his betrothed, which he showed me, weeping profusely. It was charmingly written, full of the fondest tenderness; expressive of anxious regret for his ill health, and soothing him with the most gentle and caressing sympathy. This was too much for one already overwhelmed with a profound sense of shame and unworthiness. Next morning when I called to see him he was not to be found; he had left his apartment to return no more. A day or two afterwards a negro fisherman living on one of the neighbouring sea islands brought to the city a coat and hat which he had picked up upon the beach. He had seen a gentleman take them off and lay them down upon the sand and walk directly off through the surf and breakers into the deep water. It was a cold day in February and stormy, and he was too far off to hear or to be heard or in any way to interfere. In the pockets of the coat were found Mr. T.'s handkerchief and the letter above mentioned.

Surely in the depth of this remorse we shall discover some ground for a qualified consideration.

"A wounded spirit who can bear?"

What wonder that the oppressed intelligence gave way under such a burden of pain and despair!

A sudden impulse, concurring with accident of opportunity, has not seldom determined the commission of suicide in the suffering and dejected.

One among my friends highly valued and of most estimable qualities, laboured under dyspepsia attended with much depression of spirits, and

recently, as was supposed, though not clearly made out, some religious melancholy. After three or four days of somewhat deeper gloom than usual, he apparently recovered his cheerfulness, and dined with a small party of young men whom his son had invited. Nothing in his manner or conversation struck any of them as particular; but he left them early after dinner pleading headache as an excuse and went up stairs to lie down. He had to pass the door of his son's chamber, and turning into it sat upon the bed. Unfortunately, a loaded gun—the party had just returned from hunting—had been leaned against the head of the bed, and it is conjectured attracted his attention. Taking off the boot from his right foot and placing the muzzle of the piece in his mouth, he touched the trigger with his toe, and blew off the top of his head, dying instantly. All this occupied an indefinitely short interval, so that the report of the noise of his fall forward on the floor, seemed immediately to follow the sound of his footstep ascending the stair.

It is not imagined that he intended to go into that chamber, nor that he expected to find a weapon there ready for use; a most rare contingency, the result of the young man's hurry to attend upon his guests. How much there is in this history to regret; how little it savours of criminal purpose or evil intent, need not be pointed out. And thus died Romilly and many other good men.

We meet now and then with suicides occasioned by an almost inconceivable exaggeration of matters affecting the special sensitiveness or fastidiousness, so to speak, of the individual.

A remarkable example of this sort presented itself in a gentleman holding a very responsible place under Government and employing numerous subordinates. He was a man of the loftiest and most delicate sentiment; the most unsullied honour; jealous and proud; distinguished in every way; well born, well educated and refined in manner; courteous to all, but exacting in return all courtesy and deference. On making one of his regular official statements of accounts, he was formally notified that he had overpaid two of his officers to a large amount which he would be required to refund. He replied promptly to this demand by sending to the proper department a check for the whole sum, and then informed these persons of what he had done, apparently expecting as prompt restitution at their hands. They demurred, however, and gave him to understand that they would set up and defend their claim against the Government for the entire arrear. It may be mentioned here that this was done successfully; the justice of his original settlement with them being established in due course of law. But this he did not survive to know. He conceived the idea, most unfortunately, that his integrity and uprightness in the transaction were impugned; in fact he did incur some blame among idle talkers for alleged carelessness or favouritism in the advance at first, and for undue haste in meeting the demand for restitution afterwards: but not even his worst enemy—if he had an enemy—attributed or could have suggested the slightest suspicion of personal interest or wrong or disreputable motive in the affair. Yet this vague shadow of a cloud upon a life hitherto above all censure and now advanced beyond middle age was totally unendurable, and after a few days of sullen melancholy, oppressed him to self-destruction. There never lived a man who would have been thought less likely to be driven to such

despair; wise to counsel others, sagacious in the conduct of his own affairs; prudent in his habitual method of living, he was worthy of all reliance and trust. When he was found sitting comatose on the floor of one of the unoccupied rooms in his princely mansion, no thought of suicide came into the minds of his friends or of the physicians who were first called to him, and he was treated as for an apoplectic seizure. I saw him some hours later, in profound stupor and entirely insensible. The effort to effect the introduction of medicine into his stomach being earnestly repeated, my finger introduced into his fauces encountered a piece of opium, softened but not chewed, arrested there doubtless by the supervention of narcotism while he was endeavouring to swallow it. He had taken several such, in all probability, and one or two were afterwards found on the floor, near the spot where he was sitting when sought for. The assiduous use of the stomach pump, by which were brought up gallons of water thrown in to dissolve the opium taken, protracted his life for a whole day; during which he muttered from time to time phrases indicative of irritated sensibility, and a most intensified horror of criticism and calumny.

In this case the act was clearly premeditated and deliberately resolved on; yet there was nothing in his language or manner calculated to give the least warning to those about him. He dined on that day with his family as usual, and seemed perhaps rather more cheerful than for some time previous. In the mental chaos of shattered reason, of disordered apprehension, of exquisitely tortured pride, and mortified self-respect, there is no place left for imputation of moral delinquency, no ground for just reprobation. We deplore, we pity, we lament his fate rather than condemn him. He died a victim to a nice and delicate sentiment of honour, dreading a stain far more than a wound; a morbidly exaggerated pride of position and character. Such men—such feelings are but too rare; and society in its best development will reluctantly allow his memory to be attainted with reproach.

Mr. H——, from Massachusetts, was found dead on his bed one morning just after breakfast at his hotel. He had made a loop in his handkerchief, and had fastened it to the head-post. He lay leaning over the side with his arms folded under him. I was satisfied that his position required him to press heavily forward and downward in order that he might strangle himself, and that he could have relieved himself easily at any moment of repentance or irresolution previous to utter unconsciousness. It will be recollected that a similar posture and condition of things gave rise to much discussion in the case of the last of the Condès, the Duke of Bourbon, as to the probability of his body having been suspended *after* strangulation by the hands of a murderer. (*Vide Dix Ans*, par Louis Blanc.)

Mr. H. had breakfasted at the common table, and his extreme paleness had been subject of remark among his fellow-boarders. On inspecting his body I found the brachial artery of each arm cut into at the bend of the elbow, as if with a pen-knife; and an examination of the premises showed large masses of coagulated blood on a shed beneath his window, proving that he had attempted in vain that mode of self-destruction.

His motive for the deed was obvious enough. As a junior partner in a Northern firm, he had brought with him to a Southern city a large ad-

venture of merchandise, on which he had incurred a heavy loss. His elder brother was daily expected to come on and take charge of the affair, and he had not courage to face the anticipated frowns and upbraiding.

When Mr. W. B—— came into possession of his plantation in one of our Southern States, "the driver" on the place was Old Stephen. He was a consequential little fellow, much trusted and indeed altogether trustworthy, but somewhat testy and petulant. As he advanced in years his temper grew worse and worse, and he used the whip upon "the people" under his charge more and more freely. They bore with him however good-naturedly enough, the elder ones turning him often from his purposes of severity by remonstrance, persuasion and entreaty, the younger folks by getting out of his way and evading him until he forgot their offences; all submitting the more patiently, because, though rather harsh, he was of unquestionable impartiality—he had no favourites. His increasing infirmities, however, at last brought about his deposition, and instead of overseeing his fellows, he was mounted on a marsh tackey and made cattle-minder. But this horse-back exercise did not compensate him for his lost authority, and in order to awaken pleasant reminiscences of the past and keep his whip in use, he took to flogging his wife—as many of paler complexions and higher race have done before and since his time. Di was a tall, portly, well-made woman, much younger than he, who had accepted in honourable wedlock the hand of this little wizened senior, only that she might enjoy the privileges and dignity of "driver's wife," and was of course deeply chagrined and mortified at his fall. Habitual subserviency kept her for awhile submissive under his ill treatment, but the evil became intolerable, and she complained to her master. Being much struck with the obvious difference in physical power between the ill-matched pair, he said jestingly to her: "Why do you not defend yourself? You are the strongest of the two. When he attacks you again, take his whip from him, and if he will not keep quiet, give it to him soundly." He soon left the plantation and returned to town, thinking no more of the matter. But about a week afterwards the household was astonished by the sudden apparition of Old Stephen. He was dressed in his wife's garments, and scuttled along the piazza holding up her petticoats, a foot or more too long for him, with her handkerchief twisted jauntily about his head. He had entered the yard on his little pony, and it appeared had ridden, if not the whole way, at least from his entrance into the city, sitting sidewise with his leg affectedly thrown over the pommel of the saddle like a woman. He was perfectly sober, and there was a gentle expression of sadness almost amounting to melancholy upon his wrinkled visage. When he told his story, which he did with the utmost gravity, convulsions of laughter shook his little circle of hearers, of whom I happened to be one, which we afterwards remembered with some touch of remorse. "He had corrected his wife," he said, "for some domestic misdemeanour, and she, obeying his master's suggestion, had wrested his whip from him, thrown and held him down with superior strength and in the fray had actually struck him. Having been thus overpowered by a woman, he found himself unworthy the name and garb of a man, and had therefore come down to ask for women's clothes and women's work—to surrender his horse and to give up his masculine office of tending cattle." So speaking, unmoved by the shouts of his hearers, he stood calmly and firmly awaiting the reply of his master. But he was evidently entirely unprepared for the contempt with which he was answered, and unspeakably mortified

by the peremptory order to dress himself properly, and return to his duties. He obeyed without a word, however, and a jacket and pair of breeches being provided for him—his own he had left expressly for his wife's wearing—he mounted his rough little steed and went his way, quite chap-fallen, carrying the gown and petticoats which he had doffed, tied up in the handkerchief which had been wrapped about his head. Arriving at home at nightfall, he put up his horse and took his station sullenly in the chimney corner of his own cabin, where he sat through many long hours.

Next morning early, the dairy-woman, when she went to "the pen" to milk her cows, became aware of something swinging among the branches of the mossy live-oak above her head. It was Old Stephen himself, hanging from one of the rugged boughs, in the same costume which he had worn on his memorable journey to town. With the long lash of his whip he had formed the fatal noose; he had on his head Di's handkerchief twisted creole-fashion, and her cotton petticoat and blue gown dangled far below the ends of his toes.

Thus terminated the career of Old Stephen, a spirit more unconquerable than that of Napoleon the Great. His name should have been Cato or Brutus: his soul, if not his complexion, was Roman. Ah! how little, when we drove him from among us with taunts and scorn, did we anticipate the tragical end of this singular and most unheard of comedy.

My object in offering these brief remarks and reciting these few instances of suicide, to which I might have added many others illustrative of the same purport, has been to show that this fearful act, however deeply to be deplored, however earnestly to be reprobated and forbidden, is not necessarily the result of any moral degeneracy, nor essentially associated with any imputation of vice or crime; but that on the one hand its perpetrator may be impelled by irresistible and morbid force of passion, and therefore irresponsible as are all lunatics, or on the other, led forward by an intensified sentiment of mistaken duty or obligation, deserving of our pity and sympathy rather than of unqualified condemnation and censure.

I cannot deny myself the satisfaction of presenting this consolatory view of the matter, sincerely as I entertain it, to those who have suffered the loss of friends by voluntary deaths, and who have been overwhelmed at finding them regarded even by some among scientific philanthropists as criminal rather than unfortunate and beyond endurance unhappy.

ART. VII.—*On the Nature of Phthisis Pulmonalis, and especially of its First or Pre-Tubercular Stage.* By EDWARD SMITH, M. D., LL. D., L. R. C. P.; Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Brompton; Corresponding Member of the Natural History Society of Montreal, &c.

WHATEVER may be the disadvantages of hospitals devoted to the treatment of a single class of diseases, it must be admitted that they offer the best opportunity for inquiries of a scientific character in relation to those diseases, both by the numbers of such cases brought together at one time and by the concentratedness of attention which an earnest inquirer is led to devote to the subject. Those who have had the good fortune to prosecute a part of their medical studies in France must cherish the remembrance of the facilities for study afforded by the special wards of *Lonis* when at the *Hôpital Beaujon*, the *Clinique d'Accouchement*, the *Hôpital St. Louis*, the *Hôpital du Midi*, the *Bicêtre*, and the *Hôpital des Enfants malades*; and, after a lengthened period, will still revert to them with great readiness and pleasure. I think it an advancing, and not a retrograding spirit, which of late years has caused the establishment in London of various institutions for the treatment of special classes of affections; for, whilst it must be admitted that in such institutions, wisely conducted, particular diseases may be treated as well as it is possible for them to be in other and general institutions, in progress of time it will be found that those special institutions will have led to a better acquaintance with such diseases. Whilst, therefore, I would admit that it is possible to carry the limitation to an unwise extent, I am of opinion that the profession should encourage those which are wisely established and conducted, and that pupils would find it to their advantage, in subsequent practice, to have devoted some small share of their attention to the practice of special hospitals.

Having, at the Hospital for Consumption and Diseases of the Chest, at Brompton, the greatest possible opportunity for the study of chest affections, and particularly of phthisis, I have recently engaged in several series of inquiries as to the nature and treatment of the latter disease; and the conviction has arisen in my own mind, that if we would successfully combat it, it must be in the pre-tubercular state, and that it is possible to determine with sufficient precision the disease at this early period. The belief in the futility of all our efforts in this disease, and therefore of all hospitals devoted to its treatment, is based upon experience derived from treatment at an advanced stage, and from the belief, common as I conceive, that the tubercle is both the essence and commonly the earliest recognizable indication of the affection. If we still remain of this opinion as to the nature and stage of the disease, I do not see how any greater success in our prac-

tice can be looked for; but if, on the other hand, there is a recognizable anterior condition—one in which no marked deposit has as yet appeared—then, certainly, we may have sanguine hopes both of preventing and of arresting the disease.

This, then, appears to me to be a subject of the greatest possible importance, and one upon which all our improvements must be based.

The opinion as to the nature of phthisis, which has prevailed for some years, is that it is a blood disease—a disease not merely accompanied, or even preceded by an abnormal condition of the blood; but one originating in, and essentially due to the disease of the blood. Hence, it is regarded as a general disease of the system, with a local manifestation in the lungs, and as allied with scrofulous diseases in which a deposit like to tubercle is also met with. The frequency with which tubercle is said to be found in various parts of the body at the same time, and with which the disease appears in members of the same family, or in the children of consumptive parents, are regarded as circumstances corroborating this view of its blood origin. In explaining the nature of this supposed change in the blood, it is not affirmed that tubercle is met with in that fluid; but the fault is ascribed to what Rokitsansky—in a former, but not in the last edition of his work—termed a fibrin erasis, in which the change may be in quantity or quality, but not in either universally.

In combating this theory, I shall not weaken my opposition if I admit that, in some instances, the blood was probably changed from a state of health at the very commencement of phthisis; for my objection to the theory is, that its advocates have fallen into the common error of affirming that to be true of the whole which is true of a part. No one would deny that the state of the blood cannot be the same precisely in two individuals, or in the same individual at every hour of the day, or in succeeding weeks or years, when it is remembered the source from which the blood is derived, its intermittent supply and varying character, as well as the frequent variations in the vital powers of the system. But surely much more than this ought to be required before the blood is thus said to be in a state of disease, and one, moreover, which can induce a special disease in the system locally or generally. To prove the existence of the disease in the blood, and its connection with the local disease, it is certainly needful that elements common and peculiar to the two should be found in it, or at least that by inoculation or some other mode of communication, the diseased blood can originate in other systems the disease said to arise from it. Otherwise it is an unsustained assertion, a mere guess, a mode of reasoning which would not be admitted for a moment in any system of reasoning. Now in this case the tubercle is not found in the blood, the disease is not communicable by inoculation or infection. As to its transmission from parent to child, that must result from the solids as well as the humours, and therefore is not the communication of definite elements, but a state of the whole system which

is inordinately prone to the production of the disease. Moreover—and this I think would be fatal to the theory—in a very large proportion of cases the disease has attacked so insidiously that the period of its origin cannot be determined from any state of the health then existing which differed from the ordinary health of the individual. To call that state of the system a state of general disease in which the general health is unchanged, is an absurdity, as it would be also to presume either that the precise elements of disease had existed in the blood during years of health, or that they had suddenly arisen without any cognizable cause otherwise than local, and were then incapable of demonstration. The most that can be affirmed is, that in these cases of supposed blood disease the whole system, both solids and fluids, was inordinately predisposed to the attack of phthisis.

Neither would it weaken my argument if I admitted that, during the disease, the blood may be or even is changed from a state of health; for that would only be valid to the extent of admitting a co-ordinate or a resultant condition. It might show one of the qualities or powers of the disease, but it could not show its essential value; for, by the proposition, the disease had originated before the diseased state of the blood occurred. My objection, here, is that the advocates of the theory have erred in affirming the nature of a thing from its consequence, or possibly only from its coincidence.

The observations of Rokitsansky fall under this head; for, in his remarks upon the fibrin crisis of tubercle, he refers only to the state of the blood in the disease; and although he has now withdrawn them, it cannot be supposed that the opinion of one who, for some years, has exerted no inconsiderable influence over our schools and literature, can be so readily forgotten. Hence it may be profitable to see on what unsubstantial grounds he based an argument which has influenced the whole profession. It is worthy of note how indefinite he is compelled to make his opinions, as though he felt that a fallacy was involved somewhere. He says, at the onset: "Although there are, no doubt, tubercloses purely local." And again: "The latter (meaning the tuberculous dyscrasis) is, for the *most* part, developed out of a fibrin-crisis." Thus he offers two limitations at the outset, beyond which his theory does not apply. He then continues: "In the dead subject, a hyperinosis of the blood may not be ostensible. Nay! owing to the frequent and voluminous processes of exudation attendant upon the course of a tuberculosis, a poverty in fibrin is, perhaps, more likely to reveal itself after death. Excess of fibrin has, however, been demonstrated in such cases by the chemical action of blood withdrawn during life, and it may also be inferred from the extent of tuberculous deposition. *Still the hyperinosis is far from being adequate* to account for the disease. It is the qualitative anomalies of the fibrin that must determine its tuberculous nature—anomalies of quite a peculiar kind, which we shall see may modify every one of the fibrin-crises referred to into the tuberculous."

Thus, having excluded an indefinite number of cases from the influence of fibrin crasis, he admits that the remainder may have either an excess or a deficiency in quantity, and that quantity is far from being adequate to account for the disease. As the nature of a thing must be determined from properties which are universal to it, it follows that, in Rokitsansky's showing, the whole value of his argument rests upon the proof which he can adduce as to the quality of the fibrin; for he again says: "Still these said crases by no means serve to throw much light upon the nature of tuberculosis." Then how does he prove the peculiarities in the fibrin which are to give rise to the tubercle? Strange as the answer may be, he takes the characters which he says are exhibited by tubercle, and then simply affirms that they are the peculiarities of the fibrin crasis. Such are the surpassing proneness to deposition and its high grade of coagulability; and in reference to these he gives the following remarkable passage: "The granulation of tuberculous products of inflammation upon serous membranes might indeed be ascribed to a separation of the tuberculous portion due to its coagulability. Still, the very localization of the tubercle crasis in such minute and sharply defined area, that little granule-shaped exudates are the result, constitutes a peculiarity—a remarkable peculiarity—seeing that the same form of separation—the same form of tuberculization—attaches to the fibrin of hemorrhage and to endogenous vascular coagula."

I shall presently refer to an opinion on the origin of tubercle which would have afforded an explanation of the peculiarity now referred to, far more rationally than that now offered; but, for the moment, I content myself with simply asking you to note the multitude of limitations and doubts which he has himself expressed, and to say if truth need be hedged about in this manner.

But upon the broad fact that there is any change in the chemical qualities of the blood, even in (much less at the origin of) the disease, I quote the authority of Lehmann, who distinctly affirms that he could not discover any characters in the blood peculiar to phthisis, but only such as resulted from attendant circumstances, as excess of fibrin during the complication of inflammation, and of water during that of sweating. No doubt changes must occur in the blood during the progress of so exhausting and chronic a disease as phthisis, but they do not in any way affect the question of the origin and the nature of the disease.

But, notwithstanding the preceding remarks, I fully believe that a defective constitution of body (which, I presume, is really all that is commonly meant by the term blood disease) is a frequent cause of phthisis, and as such is directly associated with whatever other conditions will directly or indirectly tend to exhaust the system. Of the two allegations, viz., that as the disease is universal it must arise either from one cause universally existing and acting with something approaching to an equal degree of intensity in all known conditions; or that it arises from many causes, all acting in

the human frame in one common way: I unhesitatingly adhere to the latter. The multitude of causes are well known, and accord with universal belief, and the one common mode of attack is, in my opinion, a diminution in the inspiratory action of the air-cells of the lung.

The short limits of a paper do not permit me to enter into this subject fully, and, therefore, I would give my reasons for this belief in the most summary way possible.

If the disease arise from general causes it must be sought for in one of the two great functions of alimentation and respiration taken in their widest sense.

In reference to the former, I have proved by an inquiry at the Hospital for Consumption, &c., and partly published in the *British and Foreign Medico-Chirurgical Review*, for April, 1856, that in the early stages of phthisis the quantity of food taken is equal to that in health, and that it is properly digested. I have also shown that if the excretions, the feces, and the solids in the urine are not greater than in health, that the excretions by the liver and skin in the early stage are probably not greater than in health, and that the sputa is the only external source of waste which at that period can be seized upon. If such be so in the early stages of the disease, *a fortiori*, they would be so at the period of origin of the disease, and hence I infer that the general cause does not lie in the want of food and in the process of digestion.

The following table contains the results of this extensive inquiry, and offers some points worthy of attention :—

TABLE IN OUNCES AVOIRDUPOIS. JUNE.

Showing the Daily Averages of the *Ingesta*, *Egesta*, *Pulsation* and *Respiration* in *Fourteen Male Cases of Phthisis*, at the *Hospital*, derived from *Observations made Twice a Day for a Month*.

Hospital Nos.	69	95	107	88	79	75	46	80	51	90	58	73	85	77	Total average.
INGESTA:															
Solids	40.1	32.3	21.1	22.3	30.1	28.6	26.6	28.8	14.7	21.7	31.4	15.2	19.7	19.	24.6
Fluids	103.	72.2	83.3	53.	63.3	60.	67.	62.6	92.8	43.6	82.6	62.	54.8	58.3	67.9
Total	143.1	905.5	104.4	75.3	93.4	81.6	93.6	98.2	207.5	65.3	91.4	72.2	74.5	70.3	92.7
EGESTA:															
Feces	7	7.5	7.8	2.84	9.6	5.65	5.82	4.75	5.85	6.94	7.55	2.6	4.82	2.34	6.3
Vomits			1.82		.20										.14
Sputa and saliva	2.2	16.6	9.7	2.8	3.94	.77	5.	0.9	.75	5.2	2.2	5.9	2.	1.73	2.8
Urine	58.5	36.8	50.8	36.2	32.2	42.5	39.8	32.6	64.	21.	49.5	23.9	30.	25.7	38.8
Total	67.7	55.6	62.9	48.4	45.1	48.9	53.	39.2	70.6	32.3	59.5	32.4	36.5	29.7	48.
Excess of ingesta over egesta															
	75.3	49.5	42.2	33.8	48.2	32.6	43.6	52.9	36.9	33.	64.4	44.8	38.	40.5	44.66
Weight of body (lbs.) monthly															
Solids in urine (grains)	+2.8	+1	+1.4	-6	-2.1	+1.1	-4	+7	=	+1	+2.2	+8	-2.2	+4	+6
Pulse	1226	856	776	758	732	704	676	626	604	596	592	574	574	550	70.3
Respiration	84.1	86.4	92.6	91.3	92.7	83.2	909	949	76.2	97.5	89.5	104.6	928.4	88.5	95.3
	16.	22.6	24.9	28.	20.6	97.	22.7	20.6	22.4	24.7	25.6	31.	20.6	29.7	23.
Meat and fish	6.8	6.2	5.2	5.4	4.1	4.3	3.8	4.7	.5	4.2	5.2	3.9	3.7	4.	4.4
Wine			2.6		8.					9.9		9.4		.9	.5
Ale and porter	15.1	8.2	14.7	19.	8.7	8.	10.	7.4	8.	2.4	8.	9.9	8.	20.	10.
Bread	21.7	18.4	9.1	8.7	14.	9.1	15.6	94.	6.8	8.6	96.6	8.4	7.9	8.2	12.

But in reference to respiration there is a change so marked as to arrest our attention, and so important as to lead to the belief of its being the immediate cause of the mischief.

In the very earliest moment of phthisis it has been already proved that there is a great diminution in the vital capacity of the lung—a diminution vastly too great to be accounted for by the accompanying dulness as indicative of the extent of tubercular deposition. It is true, that with all the help which our art can afford, the latter statement is matter of opinion, but I submit that although it is not capable of the demonstration which now belongs to the former, the conviction on the mind of the investigator is as strong as it could be if it were made cognizable to the eye. At this, as at an earlier period, there is a lessened amount of vesicular murmur and the presence of harsh respiration, and, perhaps, of wavy respiration or of prolonged expiration. The two former indicate a diminution in the action of the air-cells, the first directly and the second indirectly by the absence of the vesicular murmur which, when present, masks the bronchial sounds, and when absent presents them with their clear, short, and harsh characters to be distinguished. The disparity between the amount of diminution in the vital capacity of the lung and the tubercle then existing appears to me to be thus explained: that is, by regarding the lessened action of the air-vesicles with or without the deposited tubercle as the cause of the lessened quantity of air. This view is corroborated by the flattening of the chest, which is so constantly found even at that stage with a marked degree of lessened mobility, and, at the same time, diminished resonance on percussion, either in the slight degree which has been hitherto attributed to a natural dulness on percussion peculiar to certain individuals, or to the further degree indicating the presence of some solid material. The atrophy and the lessened mobility can only result from inaction or a lessened action of the subjacent lung on the principle that any part of the system diminishes in size as its action is lessened. The slightly lessened resonance can only be accounted for by the absence of that which when present gives the clear sound, for the construction of the chest is the same in all persons, except in those who have that part covered with fat or largely developed pectoral muscles, and it is not in either of these cases that the disease in question is commonly found. To these may be yet added another evidence, viz., the short and feeble inspiratory effort which even to the unaided senses is so frequently perceptible, but which by the help of the stethoscope is almost invariably met with in the early stage.

Thus all the circumstances of the case lead us irresistibly to the conclusion that there is greatly lessened action of the lungs, and that to an extent quite beyond the influence of the then deposited tubercle.

But to this statement may be urged the objection which I have already taken, viz., that evidences attending the disease are not necessarily anterior to and causative of it. To meet this, therefore, I would call your attention

to the large mass of patients who attend as out-patients at our hospitals, who, by common consent, are believed to be prone to phthisis, and in them we find the same flattening and lessened mobility, the same feebleness and shortness of inspiration, and the same lessened vesicular murmur, all or some of them, but, probably, to a less extent than is found in the early stage of phthisis. At this period, also, I have ascertained by a newly-invented spirometer that the quantity of air admitted into the lungs per minute is less than in healthy persons, and in no small proportion of such persons the natural capacity of the chest is small from a contraction of that cavity in all its diameters.

As the period of origin of phthisis is never ascertained with exactitude, I cannot specifically refer to the physical signs then existing, and as any case in which the signs just mentioned are present may not pass into tubercle, it is scarcely possible to give absolute proof of the connection between these signs and the tubercle of a later stage. Here again, therefore, we must in some degree rely upon common professional belief as to the class of persons predisposed to phthisis; and in such I venture to affirm that some or all of the evidences of lessened respiration now given will be found.

Now to what part of the lung structure does this lessened action apply. Obviously it applies mainly or exclusively to the air-cells. The bronchial tubes are mere conduits and do not directly bring the air into contact with the blood; that duty is reserved for the air-cells alone; but whether the power of expansion of the lungs is not in some degree conferred upon the minutest bronchi may be open to doubt; for I have ascertained that in an advanced case, one in which the total capacity shall not exceed 50 per cent., the quantity of air admitted in ordinary respiration shall not be lessened, in by any means the same proportion; a circumstance which, conjoined with the immense destruction of the air-cells, seems to imply, that not only do the bronchi contain air, but that some of them have the power of expelling and receiving some portion of it. But however this may be, it is clear that as the air-cells of a lobule lose their power of action from a deposit of tubercle, the smallest bronchi must become implicated also.

Thus as the function of the lungs is performed by the air-cells exclusively, any diminution of that process must be directly due to a diminished action of those cells. I have ascertained that the action of the cells consists in the acts of extension and retraction in a spiral manner, and it is probable that the first evidence of the lessened action of the cells would be found in the imperfection of the mode of elongation.

Thus I have endeavoured to show that the earliest indication of phthisis is the lessened action of the air-cells, and it is highly probable that this is commonly associated with or resulting from depressing agencies. We all know in our own persons the temporary effect of depressing causes, as grief, or disquietude of any kind over the action of the lungs, and have observed the slow and shallow respiration followed by long sighs or yawns possibly

indicating the accumulation of carbonic acid in the air-cells of the lung from the previous incomplete respiration. Moreover, as the function of respiration is so important and so unceasing, and as the air-cells are of a delicate organization, it is quite clear that they must be highly endowed with nervous influence from the cerebro-spinal, excito-motory, and sympathetic systems, and, consequently, be extremely liable to their own special diseases. As they have the power of extension and retraction, that power may be modified both towards decrease as well as increase; and as they are of delicate organization and so endowed with nervous influence, it is certain that they will both sympathize greatly with the general nervous system and be greatly influenced by it, and also be liable to their own special diseases, arising more or less from local causes only. Thus, the lessened action which constitutes or leads to phthisis may be either general or local; and whilst admitting that the multiplicity of causes point to a general action, we must not ignore the possibility of their being due to local causes only. I am anxious to refer to this, for we have each of us seen cases which appeared to us to have arisen from some local cause, as some prior local disease; but the prevailing notion of the general and blood origin of phthisis has led us to throw doubts over the correctness of our belief. Without venturing an assertion on a subject about which so little is known, I would take courage to ask if there are not grounds for the belief that acute phthisis is the local, as contrasted with the chronic phthisis, which is the more general form of the disease. Upon this point, however, I would not dwell, but I feel convinced that a wide field for inquiry is yet uncultivated in the diseases of the air-cells of the lungs, and that whilst we may not have given too much attention to the mere conduits of the air, we have given too little to the all-important air-vesicle.

That the lessened action of the air-cells to which I have referred as an evidence of phthisis is exclusively restricted to that disease I dare not venture to affirm. In many cases of chronic bronchitis there is lessened vesicular murmur and some lessened resonance on percussion, both due, in some degree, to the same causes as in phthisis. Whenever, however, there is lessened vesicular murmur with lessened mobility and both flattening and atrophy, and at that early period short and feeble inspiration with lessened quantity of admitted air, and with or without the slight dulness referred to, we may safely affirm that to be a case prone to tubercle.

At this period there is no deposition of tubercle, and it is that which I have ventured to characterize as the first or pretubercular stage, whilst the presence of tubercle should characterize the second, and that of destruction of the lung the third stage of the disease. It is, however, quite understood that as the whole of the lung is not implicated at once, the disease will have reached its third stage in certain portions, and only the first stage in others. The first stage probably endures for a lengthened period in many cases, for in how many instances have we noticed persons, evidently prone to

this disease, resist its attacks for years. But whether it endures for many years or not, it is sufficiently long to permit of the full employment of remedies fitted to restore the lessened functions. The difficulty lies not in the duration of the stage, but in the absence of agreement in the profession as to the existence, signs, and importance of this early condition, and more particularly from the ignorance of the public on this point, whereby the stage has long passed away before advice is sought. If, however, the profession could agree on this point, it could readily direct the attention of the community to it, and by advising a frequent examination of the chest of the younger members of families, obtain opportunities of detecting the disease thus early. Moreover, a belief in the hopeless nature of the disease, when once fairly set in, would induce the public to turn with readiness to the prevention of, or to the treatment of it in its earlier moments, if they fully understood that there is a conquerable stage in the disease in which treatment would commonly succeed.

Assuming, then, that the theory of the nature and production of phthisis now advanced is a true one, I proceed to offer an explanation of a few attending circumstances of interest.

The air which is chiefly involved in this lessened action of the air-cells is the residual air, or that which cannot be expelled by any voluntary effort during life. This is evident from the fact that the patency of the air-cells is maintained by the presence of this residual air, and that with lessened action, or closure of the air-cells, there must be a lessened quantity of the residual air. That the tidal air, or that which enters and leaves at each respiration, is not materially implicated, is evident from the small quantity of that as compared with the residual air, and from the fact that the former may remain intact whilst four-fifths of the latter may have been lost. The interest of this question is in relation to the value of the spirometer as evidence both of decrease and of improvement, and especially in relation to the chemical changes of the air in the lungs which are mainly or exclusively restricted to the residual air. Thus, no great diminution of the action of the air-cells can occur without a diminution of the residual air, nor any lessening of the latter without a lessening of the chemical and vital effects of respiration.

The explanation of the localization of tubercles to the apex of the lung, in the early stage, may be thus explained: As the direction of the trachea and the divisions of the bronchi is downwards, as is also the chief inspiratory power, it follows that the lower parts of the lung will be more readily and perfectly filled than the upper, and that the full distension of the air-cells at the apex can only follow the full distension of these at the base, whereby the distended base, as a fulcrum, directs the full current to the apex. This may also be proved by any one taking in a very full inspiration, for he will not perceive the peculiar sensation of distension at the apex until the inspiratory effect has reached its utmost extent. Therefore

at all times the extension of the cells of the apex will be proportionably less than elsewhere, and in a state of disease with enfeebled inspiratory power, the disparity will be still greater. Hence, in the first stage of phthisis, the part first affected will be the apex.

For the same reasons the liability to morbid actions will be greater there than elsewhere, for with lessened action there will be lessened vital energy, and consequently less power of resistance to morbid changes. Moreover, with less action there will be a lessened circulation, for nothing is more certain than that the circulation through the lungs is mainly supported by the act of respiration, and consequently as the latter fails so will the former, and this will, of course, be to a greater extent if solid matter is deposited so as to impede the passage of air through the smaller bronchi. Then with the lessened circulation there will be an increasing tendency to disease and a lessened power of absorption, whereby morbid or natural products may be less perfectly and quickly removed.

The air-cells having thus lost a part or the whole of their vital powers, they are fitted to become the depositories of diseased material, and hence, on a well-known principle, we may account for the selection (so to speak) of the lungs by tubercle, on the ground, amongst others, of the vast mass of such fitter receptacles which that organ offers.

To determine the origin of tubercle, and the immediate cause of its deposition in the air-cells, is a matter of great difficulty; but I venture to call your attention to the assertion of Dr. Carswell, that tubercle is first found on the free surface of the air-cells, and to that of W. Addison, viz., that tubercle on the lung is transformed epithelium. So long as the existence of epithelium in the air-cells was denied, this latter opinion was fairly open to question, but now that we must admit its existence, I feel that there are very high probabilities in favour of Dr. Addison's theory. No one who has carefully examined the material found in the air-cells in acute phthisis, or even in favourable circumstances in the recent formation in chronic phthisis, can fail to be struck with the great resemblance which exists between that structure and the epithelium of the air-cells, and the transformations which occur in them are common to both. It would be unjust to contrast them at a later stage, for such retained epithelium must be unnatural and diseased, and hence very fitted to put on further degeneration, and by that process to lose its natural characters, and to gain the earthy and oily products which constitute tubercle in its advanced condition. Moreover, on this theory the explanation is simple and natural, for as the air-cells lose their power of action and vital energy, the epithelium will be retained in the cell, and in its formation will be less and less perfect. Hence, after a time, in one or many cells, and in one or many lobules, the cells will have become filled by the accumulated epithelium, and when the distension is so great as to overcome the resistance of the lobular membrane, it will press upon adjoining lobules and impede their action, and thus in an in-

creasing ratio increase the liability to disease. In this mode we readily account for the greater comparative rapidity of phthisis after, than before, the deposit of tubercle, and the rate will doubtless be increased or lessened as the vital power of resistance of the lobular membrane, and therefore of the system as a whole, is great or little.

I do not think that frequency of co-ordinate deposits of tubercle elsewhere is adverse to this theory, for, assuming that the deposits are in many instances identical, they are commonly found in the same situation in different organs, viz., the epithelial cell, and whatever may lead to the diseased action in one organ may lead to the same in the same structure in another organ. Moreover, as we are not agreed as to what we shall call tubercle, it is a reasonable doubt which would question the identity of deposits in different structures; and then, again, as two morbid actions may be concurrent and not necessarily resulting one from the other, but both possibly dependent upon one or diverse anterior conditions, it is quite possible that a deposit may occur in the lungs and at the same time elsewhere, and both be due to the concurring action of depressed general vital energies acting separately in different localities.

We must admit that in many instances serofulous deposits in various parts of the body do occur with pulmonary phthisis, but on the other hand, I am able to prove by long inquiry at the hospital, that the proportion of phthisical persons in whom, or in whose families, external evidences of serofula have existed, is extremely small, and I feel justified in affirming the occurrence of the two phenomena to be co-ordinate action only. If the blood be diseased or serofulous, and fitted to pour out morbid products, what can be so likely a cause of phthisis as the general exhaustion and variable-ness of system which accompanies it? or, on the other hand, in cases of phthisis with original defect of constitution, what so likely a result as that the blood shall become diseased as the phthisis advances, and lead to that state which, without the phthisis, is so often found.

I am anxious to make a distinction between circumstances which may be co-ordinate, or even dependent more or less on each other in certain instances, and those which are identical either in their nature or results. I believe that the connection of phthisis with serofula is that of a coincidence, and is not evidence of any necessary relationship between the two diseases.

On the above principles we may also account for the intractable nature of the disease; for besides that it is located in an organ essential to life, its tendency is ever to the increase of morbid products, and its power, both of resisting morbid agencies and of removing morbid products, becomes less and less.

The occurrences of hæmoptysis at a period anterior to the deposit of tubercle, *à fortiori* at a period before the occurrence of destruction of tissue, is thus readily explained. As the action of the air-cells is in any part lessened, so will the quantity of blood in that part diminish, and as

the total quantity of blood in the body will probably remain much the same, there must be a larger quantity in other parts of the lung, and hence with congestion in the immediate locality of a diseased cell, a lobule, or elsewhere, there is a proneness to hemorrhage, and the exciting cause, cough, is only required to give development to it. In order to meet this difficulty nature increases the frequency of both respiration and pulsation, and thus for a time maintains a balance between the pulmonic and systemic circulation; but a period must arrive when that expedient will fail. If this be a fair explanation, it becomes a very important inquiry as to the propriety of interfering with such an hæmoptysis, or any increased frequency in the functions, and as to the possibility of arresting the former through the general circulation.

These explanations might be carried to any length, but I have already occupied too much space. My aim is rather to ask my professional brethren to draw their attention away from opinions, in reference to this great disease, which are both unprofitable and tend to stop further inquiry, and to direct them so that a rational treatment may be adopted, and a field laid well open to investigation. To regard phthisis as a blood disease is simply to shroud it in obscurity, and foster the belief, too well grounded it must be confessed, of the incurability of the disease; but the views which I have ventured to offer, seek to attract attention to the prevention of the disease, and to its very early arrest when it has commenced, and afford promise that in both directions our efforts will be successful.

63 GROSVENOR STREET, LONDON.

ART. VIII.—*Case of Wound of the Abdominal Walls, with Protruded Omentum.* By WALTER F. ATLEE, M. D., one of the Surgeons to St. Joseph's Hospital.

THE following case of *wound of the abdominal walls, with protruded omentum*, it is believed, will be found both interesting and instructive. Cases of the kind are not frequent, and surgical authorities differ widely in regard to their treatment. The account of the case is drawn up from the notes taken daily by the Resident Physician, Dr. J. J. Cruice; and it is but proper to premise that it was always determined to report it, whatever might be its termination:—

Daniel Blaney, æt. 22, of medium size, robust and healthy, a private in Company A, 21st Pennsylvania Regiment, was admitted into St. Joseph's Hospital, September 31, 1861. He had received, six hours before admission, while in a state of intoxication, a stab from a knife, in the abdomen. There was constant vomiting, with coldness of the extremities, and a small, frequent pulse.

On examination, a piece of omentum was found protruding through the anterior abdominal wall from a wound situated in the right lumbar region, rather below the level of, and three and a half inches from, the anterior superior spinous process of the ilium. The protruding mass, which was much congested with blood and quite hard, was six and a half inches in length, one and a half inches in width, and three-quarters of an inch in thickness. As is generally the case in traumatic hernia of the omentum, there was no peritoneal sac. Careful search showed that there was no protrusion of intestine. The swollen omentum, overlapping the edges of the wound, rendered it impossible to measure exactly the extent of the incision, but the knife before reaching the body had passed through the pantaloons and flannel-shirt, and in so doing had made a smooth, straight cut, exactly three-quarters of an inch in length. For a considerable distance round the wound there was great tenderness on the slightest pressure. There was no hemorrhage, at least none externally.

After some gentle efforts at reduction, it was found that it would be impossible to restore the protruded omentum to the abdominal cavity through the existing opening without using such a degree of force as would necessarily contuse and lacerate it. It remained, therefore, to decide between enlarging this opening, and then attempting its reduction, the ligation of the protruded mass, its excision, or expectation. For reasons that will be stated more conveniently after completing the history of the case, the latter course was adopted, and the protruded omentum was left as it was, covered simply with a piece of lint wet with cold water. The patient was ordered to keep very quiet in bed, stretched to full length on his back, a full dose of morphia was given to diminish pain and to keep the intestines at rest in case the knife had penetrated them, and the strictest diet was ordered—nothing but small pieces of ice being allowed.

On the following day, October 1st, there was an erysipelatous blush spreading over the abdomen, for which an ointment of sulphate of iron was used (5j to ʒj of simple cerate), and the muriated tincture of iron was at the same time given internally, fifteen drops every two hours. The protruded omentum was enveloped with lint coated with this same ointment. In the evening an injection of soap and water was administered, which brought away a large quantity of feculent matter without any blood, giving assurance, as no blood was ejected from the stomach, while the vomiting was incessant, that the intestine had not been wounded. This vomiting continued until the 4th October, when it ceased after a few doses of brandy with aromatic sulphuric acid. The ready and constant action of injections, which were given every evening, gave sufficient evidence that it was not owing to any strangulation of the bowel, but was altogether sympathetic. On the 5th October all irritability of stomach had disappeared, and the patient took essence of beef and milk punch, in small quantities, frequently repeated, without suffering from nausea.

On the 6th October the patient imprudently reached out of bed to pick up a handkerchief from the floor, and brought on hemorrhage from the wound, which, though checked each time by the application of Monsel's solution of persulphate of iron, returned again and again for three days. The source of the hemorrhage was not discoverable; whether from the edges of the incised tissues or from a ruptured vessel in the omentum. A very considerable quantity of blood was extravasated into the cellular tissue around the wound, although this was prevented as much as possible by compresses of sponge, held in place by means of Velpeau's bandage for the

groin. When pressure was made with the fingers round the wound to expel this extravasated blood, it came out mingled with gas and a thin, dark liquid of a very offensive smell. On the 8th October the patient had a violent chill lasting eight minutes, which caused great alarm, lest it should prove a symptom of commencing pyæmia. On the 9th the hemorrhage had ceased, the discharge from the wound was more healthy, and the whole condition of the patient was satisfactory. On the 10th he slept very well without morphia, and eat with good appetite at breakfast one egg with toast and tea, and some beefsteak at dinner. On this day some four inches of the protruded omentum, that had gradually become black, flaccid, and of a most offensive odour, were removed as perfectly dead; the remainder was a firm, fleshy mass, to which some small gangrenous pieces, here and there, were still adhering. On the 12th all these dead pieces having come away, and what was left secreting everywhere healthy pus, it was pushed under the skin, and the orifice was closed by silver sutures, sufficiently far to prevent the remnant of omentum from again coming out. It had then the size and shape of a small little finger, and it had formed firm union with the muscles through which it was protruding. The wound in the skin was not closed entirely, in order to allow of the escape of any liquids secreted between the muscles and the skin, which had been separated by the hemorrhage. After this, with the exception of some delay from the pain and annoyance caused by two boils, one on the lower lip, the other on the back of the neck, which opened respectively on the 11th and 16th of October, and which, it is believed, are intimately connected with the chill above mentioned, the patient went on steadily improving.

On the 25th the wound had entirely healed, and he was allowed to sit up for two hours. He is now, November 5th, walking about, eating, with a good appetite, the ordinary food in the hospital, suffering no abdominal pains or dragging sensations, and having his bowels moved as usual. With the exception of some debility, the consequence of the confinement, the treatment, and the hemorrhage, the man has perfectly recovered from his injury.

The history of this case being now given, it remains to state the reasons that led to the adoption of the plan of treatment which was pursued. As said before, the question was, whether it would be best to enlarge the opening and then try to reduce the omentum; and again, if unreduced, whether it should be ligated, excised, or left to itself.

By enlarging the opening there was a risk of having a greater mass of omentum protruded, and thus of increasing the difficulties of reduction; and more than this, provided the reduction should be accomplished, a larger wound must expose the patient in a greater degree to ventral hernia from distension, if not to giving way, of the cicatrix. The situation of the wound being in the lower part of the abdomen, was very favourable to such an occurrence. As regards the statements made by some authors that painful dragging sensations during digestion are the consequence of not reducing protruded omentum, they were believed to be founded rather upon theoretical views than upon practical observations.¹ The ill effects of ligating

¹ Robert, *Bulletin de la Société de Chirurgie*, 1851, as cited by Nélaton, *Path. Chirurg.*, tome iv. page 116.

the omentum in these cases have been abundantly proven.¹ To excise the mass would be to run the risk of hemorrhage, which might not be of much consequence, it is true, if the remaining portion continued in position; but, in case of its withdrawal, would lead to internal hemorrhage, and an effusion of blood into the cavity of the abdomen. It was, for these reasons, determined not to interfere actively in the local treatment of the case, but to trust to expectation, and, as the result has proved, there is no cause to regret this decision.

It was designed, on account of the interest and importance of the surgical question involved in the case here reported, and also on account of the neglect with which it has been passed by in modern systems of surgery, to consider at length the opinions of both ancient and modern surgeons in regard to the value of the different methods of treating penetrating wounds of the abdomen with protrusion of the omentum. This, however, as was afterwards discovered, has been so satisfactorily accomplished in a memoir contributed by Hipp. Larrey to the Academy of Medicine,² on the occasion of a case very similar to the one just related, that the design was abandoned.

It is thought fitting to quote the concluding sentence of this remarkable memoir of M. Larrey, as most appropriate to the present occasion:—

“May these considerations serve to demonstrate that in surgery, we can rationally and beneficially do something besides cutting, tying, excising, and destroying: it is to wait and to assist by the most simple resources of art the so powerful efforts of nature.”

ART. IX.—*Brief Account of a form of Skin Disease occurring in Manufacturers of Kerosene Oil, and believed to be undescribed.* By HARRISON ALLEN, M. D.

IN the early part of the summer of 1861 a person who had been a workman in a Kentucky kerosene oil manufactory came into the ward for diseases of the skin of the Philadelphia Hospital, having a pustular form of skin disease of a peculiar nature. The patient had had the affection six months, and attributed it to some poisonous agent employed in the manufacture of kerosene oil, as it appears that in the works in which he was employed some other of his fellow-labourers were affected in a similar manner.

The disease first presented itself upon the hands and forearms; but at

¹ Pipelet. Mémoire sur la ligature de l'épiploon, in the Mém. de l'Acad. Royale de Chirurgie, tome 31ème, p. 373. Paris, 1819.

² Sur les plaies pénétrantes de l'Abdomen compliquées d'issue de l'épiploon, in the Mém. de l'Acad. de Méd. for 1845.

the time of his admittance it had extended to the chest, back, and inner surfaces of the thighs and legs, the face and scalp being entirely free. It commenced by the appearance of a number of small papules of a reddish colour, which in the course of one or two days became marked phlyzacious pustules. Each one of them bore upon its summit a black spot closely resembling the discoloured surface of sebaceous secretion. The pustule, in about the same time as was required for its maturation, desquamated and left behind a small deep pock somewhat resembling that which succeeds the smallpox pustule, but much less significant. The time ensuing from the appearance of the papule to the formation of the pock varied, but most generally five days were sufficient for the completion. In a comparative few instances the process of maturation appeared checked and the papule would change to the pock without any pus having made its appearance. Occasionally one of the pustules, after having desquamated, would again go through the same conditions before the skin would resume its natural colour and sensation.

The eruption was most plentiful upon the anterior and posterior parts of the chest, where the papules, pustules, black spots, and minute depressions were all intermingled.

The pain was very trifling. A sensation of soreness in the pustules was complained of, which became worse at night when the patient was warm in bed. There were no constitutional symptoms whatever. The man was stout, strong, and, with the exception of the cutaneous affection, in every respect healthy.

His treatment consisted of a soda bath every morning, and five grains of iodide of potassium three times a day.

This was continued with but little advantage during the latter part of June and the whole of July. On the first of September the iodide of potassium was stopped. He now commenced with five drops of liq. potassæ arsenitis three times daily, together with the soda baths and the local application of ung. hydrarg. nitratis. Under this treatment he gradually improved. The papules became fewer and smaller until there existed but a few discoloured spots upon the back and chest, the other parts being entirely free.

The conclusion which one would naturally arrive at after hearing the history and seeing the appearance of this patient would be, either that there was some poisonous agent contained in the materials from which the coal oil is extracted, or that in the process of manufacture certain chemicals deleterious to health were employed. But, unfortunately, there is no principle or acid found in the coal upon which any suspicion can rest. Those manufacturers with whom the author has conversed refuse to accuse any set of ingredients of producing pernicious effects; but they, on the contrary, maintain that they are quite demulcent in their nature, the oil especially being used by the workmen as a local application to abrasions and burns.

On the other hand, chemists are unable to affirm that any articles used in obtaining the oil are capable of being exciting causes to disease. The substances are generally familiar acids and alkalies, and it is impossible that their accidental contact with the skin should produce a peculiar eruption which could last half a year. But it must be acknowledged that on this subject there is a certain amount of unavoidable ignorance. Each manufacturer may, and in many instances has a secret process for obtaining his oil; and of course if there be any morbid symptoms arising from the injurious employment of these agents, the nature and origin of such effects must alike remain unknown.

It would then seem that we cannot arrive at a definite and satisfactory conclusion; and we are led to suspect that the patient might have been induced to accuse his trade for causing that which would be the natural results of depraved habits. But the man has an untainted constitution and is temperate. He has never had any form of skin disease previous to this attack; and the fact that it came upon his hands first and that he suffered in common with his fellow workmen similarly engaged, go to prove the external source of the disease.

The pustules with their blackened summits resembled acne; but the face was entirely free, while the breast, back, and lower limbs were thickly strewn with them. Again: the eruption spread slowly from the hands upwards over the trunk: and it would seem that there was some deep-seated poison to produce reiterated effect; for in some instances, as mentioned above, a simple pustule would several times rematurate before resolution would occur. So that these facts, taken together, show that the symptoms of this form of eruption are quite peculiar; and although it is as yet somewhat obscure and the present advantages of investigation limited, it nevertheless presents an interest to the practitioner from the fact that it seems to have been in some manner intimately connected with the manufacture of an article which is now exciting general attention.

REVIEWS.

ART. X.—*The Transactions of the American Medical Association.* Instituted 1847. Volume XIII. 8vo. pp. 930. Philadelphia, 1860.

THE Transactions of the thirteenth annual session of the American Medical Association, presented in the goodly-sized volume before us, comprises several very able and interesting reports and communications on subjects of general interest. It is, however, by no means the scientific papers that have been elicited by the Association, however favourable may be the estimate placed upon them, which form the most important of its labours. Its chief value, after all, consists in the beneficial influence it is calculated to exert upon the educational and ethical interests of the profession throughout our country. In this direction, its action, it is true, has not been productive of all the good that could be desired, still, it has not been altogether without results in the highest degree beneficial. During the last twelve or thirteen years a marked improvement has taken place in both the character and attainments of those who have entered the medical profession: greater facilities have been furnished for the study of medicine as a science and an art, while the number of those who gladly avail themselves of these facilities has every session been constantly on the increase: so that among the graduates sent forth annually by our medical schools there are now to be found many, the excellency of whose attainments bear testimony to the competency and fidelity of their teachers, as well as to their own diligence and aptness as pupils, and who, by their moral character, their intellectual attainments, and their preparedness to enter upon the practice of medicine, and by cautious observation to enlarge our knowledge of the nature, causes, prevention and cure of disease, cannot fail to confer honour upon their profession, and a solid good upon the community at large. It must, nevertheless, be admitted that, in this country, medical education is in many respects imperfect, and in some portions of it altogether inadequate as a preparation for the proper fulfilment of the solemn and weighty responsibilities of those into whose hands are committed the health and lives of the community; and that, in consequence, there is every year a large number of imperfectly educated individuals licensed as practitioners of medicine. We need not, therefore, be surprised that the subject of medical education should have occupied as prominent a position in the deliberations of the American Medical Association at its last as it had at each preceding session.

Two committees having the subject in charge presented each a report, with a series of resolutions appended for the action of the Association. The first of these committees was one appointed at the session of 1859, to confer with a committee appointed by the convention of medical teachers. Its report was presented by Dr. Blatchford. After a very full discussion of the several topics necessarily connected with the object of their appointment, and a free interchange of opinion with the members of the joint committee of conference, the committee of the Association are convinced

that our medical teachers are by no means insensible to the defects in the present system of medical instruction, and are not indisposed to co-operate in good faith in any proper measures of reform that may be proposed. They are fully persuaded that notwithstanding much has been done and is now being done to afford to medical students an adequate professional education, there is still much more to be effected in order that the qualifications of our medical graduates, throughout the country, may become conformable to the standard approved by the committee. They suggest, however, that the changes necessary to this end must necessarily be effected gradually, and that more good is to be expected by a sure but slow progress towards perfection than by any great and sudden revolution.

The series of resolutions attached to this report embrace the following propositions:—

“1st. The requirement from every candidate for the degree of Doctor in Medicine, certificates, showing that he has been engaged in the study of medicine, under the direction of a reputable practitioner, recognized by the Medical Association, during *the full* period of three years, and that he has attended two entire courses of lectures, delivered in two separate years, by a faculty regularly organized according to the requirements of the Medical Association.

“2d. The keeping of a permanent registry by each medical college, in which every one who presents himself for matriculation shall be required to enter his name and age, the period when he commenced the study of medicine, and with whom; stating any diploma he may have received in evidence of previous education, with the name of the college or school from which it was received.

“3d. The attendance of every candidate for the doctorate upon a course of clinical instruction regularly for at least one year.

“4th. The presence at all examinations of candidates for graduation as Doctors of Medicine, of two or more delegates from the Medical Society of the State in which the college is located, with the privilege of voting on the question of the qualification of said candidates for a degree.

“5th. The appointment by the several State Societies, at their annual session, delegates in accordance with the preceding proposition.

“6th. No college to be recognized by the American Medical Association which does not require from all applicants for matriculation satisfactory evidence of suitable preliminary education.

7th. Efforts approved and recommended to obtain from individuals or the State the endowment of medical colleges and professorships.

“8th. The colleges to be recognized as regularly organized by the Medical Association are such as have been represented at a meeting of the convention of medical teachers, and which comply also with the regulations proposed above.”

The resolutions proposed by the committee received the sanction of the Association. The suggestions set forth in them are, upon the whole, judicious, and could they be fully carried out would unquestionably exert a most beneficial influence in the promotion of a proper system of medical education. There may, perhaps, arise in the minds of some a doubt as to any advantage that would result from permitting delegates from State Medical Societies to vote on the question of the qualification of the candidates examined before them for admission to the doctorate. Be this as it may, there can be no doubt, we think, that the presence of such delegates at the examination of the candidates for medical honours, must have a beneficial effect by preventing any being admitted to the doctorate who had not passed a satisfactory examination.

The second report, that of the standing Committee on Medical Education, which was presented by Dr. D. Meredith Reese, enters into a brief review of the plan of medical education in the United States compared with that of other countries, and the improvements necessary to render it suffi-

cient for such a preparation of candidates for the degree of Doctor of Medicine, as shall qualify them for safe and successful practitioners of the healing art. The system of professional education approved by the committee is set forth in a series of resolutions affixed to the report. These provide:—

“1st. That no one is to be received into the office of any physician or matriculated as pupils of any medical school, who is not at least seventeen years of age, of good moral character, and possessed of a respectable English, classical, and mathematical education.

“2d. That the term of office study, including attendance upon lectures, shall be four years; the last year to be chiefly devoted to *clinical instruction* in medicine, surgery, and midwifery.

“3d. That attendance upon three full courses of lectures, in such college or body of lecturers as shall be recognized by the American Medical Association, be required of candidates for graduation as Doctors of Medicine. Said candidates to be admitted to examination after three full years of study in all the branches in which they are required to be instructed, excepting clinical medicine, to the study of which they will be expected to devote an additional year.

“4th. That the period of instruction in the medical schools shall occupy nine months, being divided into two sessions. The *first*, for the *junior class*, to be occupied chiefly in the study of the elementary branches: the *second*, for the *senior class*, to be devoted to the practical and more complex branches. Not more than four lectures to be delivered each day in either session; the lectures to be preceded by a recapitulation of that of the previous day, by a series of questions addressed to the class.

“5th. That the number of professors in each medical school shall be increased.

“6th. That the examination of candidates for matriculation and reception into the junior class shall be repeated before their reception into the senior class, by the faculty or examiners appointed by it, in order to test the sufficiency of their preliminary education and their proficiency in the several branches taught in the elementary departments: their admission into the senior class to be contingent upon the satisfactory result of such examination. Examinations to be made, also, at the commencement of each session as to the improvement that has been made during the preceding term.

“7th. That the final examination of each candidate for graduation shall be conducted separately, in the presence of the entire faculty of the school, and witnessed and certified to by a commission of equal number, to be appointed by the State Medical Society in whose bounds the school is located, or by the faculty. The approval of said commission to be necessary for admission to the doctorate.

“8th. That no medical school shall be recognized by the American Medical Association which does not possess a hospital of its own, or which has not secured for its students, previously to their being licensed to practise as physicians, regular clinical instruction in a hospital containing not less than eighty beds. The so called *college clinics* not to be considered as furnishing an adequate substitute for the required clinical teaching.

“9th. That the practice of examining students for graduation, before the close of the regular session, and while the lectures are still in progress, is to be regarded with marked disapproval.

“10th. That the title of each chair as announced in the curriculum of each college shall indicate actual and full instruction in the several branches which are virtually promised to be taught by it.”

The plan of instruction set forth in the propositions just given is unquestionably a most judicious one, and one which could be carried into execution with little delay or trouble. In some few of its details it would certainly admit of improvement. The same remarks will apply to it in respect to the introduction of delegates from the State Medical Societies as witnesses of the examination of candidates for graduation and certifiers

to their competency, as was in reference to a similar suggestion made by the Committee of Conference. Especially are there serious objections to the appointment of such delegates by the faculty of the school, the examination of the pupils of which they are to superintend.

The entire report and resolutions of the Committee on Medical Education demand the careful and candid consideration of the profession previously to their final disposal by the Association.

The topic which, next to that of medical education, has occupied most prominently the attention of the Association at nearly every session, is Medical Literature. A report was presented at the last session by the standing committee on the subject, through Dr. D. P. Wright, of Nashville, Tennessee. From a consideration of the medical works, American and European, published in this country during the two years over which the report extends, and the number of those previously published of which new editions were issued within the same period, the inference is drawn that the physicians of the United States are beginning to rely for professional instruction more upon their own writers than was formerly the case: a fact which will, we think, be found well established by all who will take the trouble to examine the evidence bearing upon the question.

Within a very short period a number of works have been issued from the American medical press by native authors; which are confessedly entitled to rank among the best in their respective departments. Taking these, as we may with the utmost propriety, as representative books—books exactly adapted to the condition and wants of American physicians, it is very properly assumed in the report under consideration, that whatever they have in common, considering the great diversity of their subjects, they possess because of their being American works, and that consequently their similarity in this respect is to be received as the distinguishing characteristic of American medical literature. Examine them and they will be found nearly all to belong to that class of works in which individual truths already known are compared, classified, and brought into system, so as to present clearly the general deductions or principles to which they lead, and to mark their true practical application. By extending our examination to the entire list of our leading medical writings of native origin it will be found that they, also, with few exceptions, belong to this same class. It is precisely the kind of books which is required by the profession in this country in consequence of the peculiar circumstances amid which it is placed—the only form of medical literature, if we except the periodical, which is adapted to the present wants of the great body of our practitioners.

“Our medical writers produce exclusively text-books, or at the best, convenient books of reference, such as may, with the least possible expenditure of time and labour be consulted by the preoccupied practitioner; and this, not because we are without the men who could produce a different order of medical writings, but because a different order of books would necessarily fail to secure purchasers and readers. There is no supply because there is no demand for any other class of works than is printed.”

We have in this paragraph a concise but most truthful exposition of the actual cause why in the medical literature of the United States there should be so large a preponderance of systematic compendiums and treatises on the several branches of medical science; of works compiled from the facts, observations and deductions presented by preceding and for the most part European writers; and so few original monographs, the materials of which were derived from fields of research hitherto unexplored—and through

which new truths have been revealed, and our professional knowledge extended beyond its previous limits. Now to improve the tone, enhance the value, and increase the amount of our medical literature, it will be necessary to multiply the number of educated physicians in our midst, to augment the ranks of those who have the desire and opportunity to cultivate medicine as a liberal science and not simply as an art based upon empiricism; of those who are ready to avail themselves of every means adapted to improve and extend their acquaintance, equally with the philosophy as with the practice of medicine. It is to such men that we must look for the producers as well as for the readers, and of consequence, the encouragers of original and erudite works in the higher branches of etiology, pathology and therapeutics. We have only to create the demand for a more extensive and elevated medical literature of our own, based upon original observations and researches, and the supply will quickly follow.

The section of medical topography, epidemic diseases, etc., presents two able and instructive reports. One on the Medical Topography and Epidemic Diseases of the State of New York, by Dr. Joseph B. Smith; the other on the Medical Topography and Epidemics of North Carolina, by Dr. James H. Dickson.

The first of these reports is a very extended one, occupying one hundred and eighty-nine pages of the printed Transactions. It presents a brief notice of the geology, hydrography, mineralogy, flora, fauna, meteorology, and ethnography of the State of New York. Under each of these heads the information given, though necessarily a mere outline sketch, is in the highest degree interesting and instructive, constituting an appropriate and valuable introduction to the consideration of the epidemics of the State. These are examined under the heads of contagious, infectious, and meteoritious. As infectious diseases Dr. Smith includes such as are of either koino-miasmatic, idio-miasmatic, or idio-koino-miasmatic origin. Meteoritious diseases he defines to be those which are the result of certain insensible insalubrious qualities of the general atmosphere. The more remarkable of the meteoritious diseases are influenza, pneumonia, diphtheria, erysipelas, and Asiatic cholera.

A careful examination of the histories furnished us of the endemic and epidemic diseases that have prevailed at different periods and in different locations will, it is our impression, show that the arrangement adopted by Dr. Smith is rather artificial than real. It will be found, we think, very difficult to determine the actual limits by which the diseases belonging to any one of the classes referred to are separated from those which appertain to the other two. In many instances they will be seen to run into each other, so as to render it very difficult to say whether they have originated from paludal exhalations, domestic or civic malaria, or from some occult morbid constitution of the atmosphere independent of either of these poisons. In, perhaps, the greater number of cases both koino and idio-miasmata will be found to be concerned in the development, location, extension, and intensifying of epidemic diseases; even those of which the first link in the causation may be strictly meteoritious.

In a State of an extent like that of New York, and exhibiting the same diversity in medical topography, character, pursuits and density of population, in its different districts, it is not possible to study profitably its endemic or even epidemic diseases excepting in reference to the particular portion of the State in which they occur. Hence, in his account of the periodical fevers of New York, Dr. Smith considers them according as they occur in

the maritime, Hudson River, elevated table-land, great lake, and northern regions of the State.

In the maritime region, he remarks, it may be stated, as a general fact, that

"Those summers and autumns are most productive of febrile diseases in which the quantity of rain is above the mean, and the range of atmospheric temperature unusually high. In some years, for reasons unknown, the localities most subject to fevers enjoy an almost entire immunity from these diseases, and such immunity sometimes continues for several successive years; and yet, in every summer and autumn the number of sporadic cases is sufficient to mark the miasmatic localities."

The same remarks will hold good, we believe, in reference to all malarious regions. In the State of Pennsylvania the disappearance of periodical fevers from neighbourhoods where they had previously appeared every year as the regular autumnal epidemic, and without any appreciable change in the condition of those neighbourhoods, has, of late, become of common occurrence.

"In the survey which has now been made of the districts and localities in the State of New York, in which periodical fevers prevail, it will be observed, says Dr. Smith, that the topographical and meteorological conditions in which they occur are, for the most part, the same as those in which they prevail in the more southern latitudes. It is, however, noticeable that the intermittents and remittents, in this State, are less disposed to assume a pernicious or congestive form; and what is no less noteworthy, the malaria does not so generally induce visceral enlargements, nor that sallow hue of the countenance, and cachectic condition of the system so frequently observed in southern miasmatic countries. Individuals, however, who suffer from ague in this State, are not entirely exempt from these malarious affections.

"In the sketch we have given of the periodical fevers which are due to malaria, there would be a defect were we not to notice one of the more common and severer forms which these diseases sometimes assume. We refer to dysentery. Though frequently occurring in situations where malaria does not exist, it is usually prevalent in the summer and autumn, in miasmatic localities, where intermittents and remittents are rife, and of which it may justly be regarded as a modification. These diseases occurring contemporaneously in the same locality, and being convertible into one another, and manifestly produced by the same efficient or malarious cause. Now, the source from which fever, whether originating from malaria or any other cause, derives its dysenteric form, is manifestly a peculiar variety of atmospheric influence, or what we denominate *epidemic meteoration*, an influence which, varying in its properties in different years, varies the diathesis and phases of popular diseases."

The account given by Dr. Smith, in the report before us of the diseases arranged by him under the heads of koino, idio, and idio-koino-miasmatic, as these have occurred of late years within the different sections of the State of New York, presents a mass of facts, apparently carefully observed and accurately reported. These facts are of great value as materials, illustrative of the etiology—for constructing, if we may so express ourselves, the first link in the natural history of a class of diseases in everything relating to which the physician, as well as the community at large, are deeply interested, from their extensive prevalence—especially in the newly-settled portions of our country, and the amount of suffering and the permanent impairment of health so apt to be entailed by them upon those whom they attack. An interest greatly enhanced by the fact that, in nearly all our older settlements, these diseases may be extinguished by the removal of their causes. It is remarked by Dr. S., in concluding his examination of the periodical fevers of New York, the conviction must be strengthened at every advance made in surveying the malarious localities within that State, that very many of

these might, by a rigid system of drainage, be brought into a condition incompatible with the generation of the endemic cause of fever; and the same remark may with truth be repeated in respect to the malarious regions of other States. There can scarcely be a doubt entertained,

“That such a change could be effected, to a great extent, under the direction of a State sanitary commission, and a corps of engineers provided with ample funds for the purpose; and that the outlay would be more than repaid, directly by the general improvement and security of the public health, and, indirectly, by adding to the vital force employed in enhancing the wealth of the State.”

Excellent as are the materials so abundantly furnished by the report of Dr. Smith on questions of the deepest interest in respect to the etiology of fever, we find it impossible to give anything like a useful and satisfactory analysis of them within any reasonable limits.

The history furnished in the report, under the head of the Meteoritic Epidemics of New York, of influenza, pneumonia typhoides, diphtheria, and erysipelas, as these diseases are found to prevail in the State, will be read with deep interest and no trifling profit. In respect to most of them the notice given by Dr. S. is both retrospective and contemporary.

The report of Dr. Dickson on the Medical Topography and Epidemics of North Carolina occupies only eighty-two pages. It is a well-digested and most valuable paper.

The diseases noticed by Dr. D. are, 1st. *Bilious fever*, in its several forms; an affection which may be considered as the most constant, as it is the leading epidemic of nearly all Southern climates, especially of those in which a damp summer, or a season of heavy rains is followed by a very dry and hot autumn. 2d. *Typhoid fever*; which, of late years, has come to pervade the entire area of the State, from the mountains to the seaboard, being apparently but little influenced by climate or local conditions. 3d. *Scarlet fever*; sporadic cases of this disease are met with almost every year; while, as an epidemic, it is found to prevail in different parts of the State, at intervals of only a few years. 4th. *Cerebro-spinal meningitis*. This very grave epidemic appears to have prevailed in certain districts of North Carolina, in 1856 and 1857. 5th. *Dysentery*. In its epidemic form it is encountered almost every year throughout the State. Of late years, we are told that the disease has assumed a comparatively mild form; it being now a rare thing to meet with those formidable cases which were of frequent occurrence twenty years ago, approximating in severity to the tropical forms of dysentery as described by Johnson and Annesley. 6th. *Cholera infantum*—a confirmed endemic of the State, and liable to prevail epidemically, every year, both spring and autumn. 7th. *Aphthous* or *follicular stomatitis*. This affection prevailed so extensively in the early part of the summer of 1858, as, in the opinion of Dr. D., to be fairly entitled to be ranked as an epidemic. 8th. *Jaundice*, which prevailed extensively in the city of Wilmington in 1847, and in other portions of the State in 1857 and 1858. 9th. *Pneumonia*. This, according to Dr. D., is to be regarded as the great endemic of the winter and spring months, throughout every portion of North Carolina; prevailing so extensively almost every year, as often to be entitled fairly to the character of an epidemic. The account of each of these diseases, as given in the report under consideration, is particularly instructive.

Under the head of *Cerebro-spinal Meningitis* mention is made of a very unusual endemic, attended, in many of the cases, with marked symptoms of that disease. The history of the epidemic is furnished by Dr. J. J. Sumnerell, of Salisbury, in whose vicinity it prevailed.

During the months of March and April, there occurred to a great extent among young persons, mostly children, an affection closely resembling what is described in the books as catarrhal fever. Its prominent symptoms were drowsiness, heat of surface, rapid but rather feeble pulse, dry and slightly furred tongue, sordes on teeth, great muscular prostration, extreme dryness of nasal passages, with so turgid a condition of the lining membrane as to render respiration through the nostrils difficult and painful. When aroused the patient complained of intense pain in the region of the frontal sinuses. There were marked symptoms of catarrh always present, attended, however, with an unusual amount of constitutional disturbance. Generally the bowels were costive, though sometimes diarrhoea was present.

This condition of the patient, with little or no alteration, would continue for from one to three days, when very generally there was observed a small red erysipelatous spot on the face, usually on the eyelids and temporal spaces, slightly tumefied at first, but increasing rapidly, it would, in some instances, become so great as to close the eyes in a few hours. In every case in which the erysipelatous eruption was well marked there took place a speedy amelioration of all the graver symptoms, and convalescence speedily ensued. Occasionally, cases occurred in which there was no external evidence of erysipelas, but, instead, bronchitis or pneumonia would ensue. These cases, also, under judicious treatment, generally terminated favourably. The chief reliance in their management was upon a stimulant and supporting plan modified according to circumstances, with such a mild mercurial impression as was compatible with the asthenic character of the disease.

In another class of cases, after the early symptoms above described, there were developed those of cerebro-spinal inflammation. In these coma gradually ensued, or the frontal pain increasing greatly in intensity, soon gave place to the wildest delirium. In some instances the pupils of the eyes became so permanently dilated as to greatly impair or destroy vision, in other instances they were closely contracted. There was more or less stiffness of the muscles of the neck. In one case there was a tendency to episthotonos. The patient soon lost all consciousness, and gradually sank. In one case death was preceded by convulsions. It is needless to say that these cerebro-spinal cases almost invariably proved fatal.

Since the year 1856, erysipelas, we are told, has prevailed in Rowan and Cabarrus Counties more extensively than it was ever known to before, but it is seldom that it has been attended by symptoms of cerebro-spinal meningitis.

The almost universal conviction of the physicians who had an opportunity of carefully observing and analyzing the cases occurring during the epidemic referred to, was, that in those where an erysipelatous eruption occurred upon the face, as well as those in which the catarrhal symptoms were followed by those of thoracic or cerebro-spinal inflammation, the disease was the same—being only different forms of constitutional erysipelas producing variously situated local disease.

In treating of pneumonia Dr. D. remarks, that the disease, as it prevails in North Carolina, assumes all the varieties of type described by systematic writers, from that of the most intense sthenic inflammation to the gravest form of the adynamic and congestive varieties. In the greater number of the cases which now occur the disease is described as being of a subacute character, and, according to the report before us, may be treated without the lancet. Local bleeding, antimony, and the *veratrum viride*, would

seem to be quite sufficient to control their progress; cases, nevertheless, continually occur that cannot be prudently nor safely managed without the employment of general bloodletting. Dr. D. believes, that in the veratrum viride we have a remedy of great efficacy in the treatment of pneumonia, and one which, in many cases, may safely supersede the use of the lancet. When, however, the inflammation is of a high grade, as indicated by a sharp (hard?) quick pulse, and great heat of skin, he admits that bloodletting, both general and local, will be indispensable to secure a favourable result. In these cases he has known the veratrum viride to fail in exerting any salutary influence. In some cases of puerperal pneumonia he has found the veratrum a very valuable remedy, either by itself or in aid to bloodletting. This form of the disease, we are told, is a very formidable one; the fatal course being often uninfluenced by any plan of treatment.

Passing by the report of the surgical section, a notice of which will be given hereafter, we come to the report of the section on Practical Medicine and Obstetrics. The first paper embraced in this report is one on the *Influence of Alcoholic Drinks in the Development and Progress of Pulmonary Tuberculosis*, by Dr. N. S. DAVIS, of Illinois. This has been already specially noticed in our preceding number, p. 504.

The next report is on the Education of Imbecile and Idiotic Children, by Dr. H. P. Ayres, of Indiana. It is a long and somewhat elaborate paper, occupying 140 pages of the printed Transactions.

As its author well remarks, amid the many brilliant achievements of the nineteenth century, in the discovery and successful application of means for remedying the physical defects of the human organism, and for the due development of the intellectual and moral faculties of man, there is none which exceeds in importance or is adapted to confer a greater amount of benefit upon society than the education of the idiotic and feeble-minded. The subject has been, as yet, only sketched imperfectly in its general outlines; what may be its ultimate results when further research and the lessons of experience shall have enabled us to fill up these outlines, and perfect and complete the design in all its details, it is impossible to anticipate. From what has been accomplished we have a right, certainly, to anticipate the most brilliant success in the future.

Facts and observations in respect to almost everything connected with the subject are, as Dr. Ayres justly remarks, still needed. We have yet to learn, with greater precision, the various forms, degrees, causes, concomitants, and effects of idiocy and mental imbecility; the number, age, sex, location, parentage, and social condition of the feeble-minded in every portion of our country, the greater or less capability for improvement by the several classes into which they may be arranged, and the educational means that have been adopted here and elsewhere for the development of their physical, moral, and intellectual powers, with the success by which these have been attended respectively.

The leading object of the report before us has been the collection and collation of the facts now known in reference to the subject generally; especial attention being had to the present state of the education of the imbecile and idiotic, and the means adapted for its improvement. As a subject intimately connected with that of idiocy and its amelioration, Dr. Ayres presents at the close of the report a *résumé* of cretinism.

The report is arranged in sixteen different chapters, the first three of which treat of the mind, the proper definition of idiocy, and its characteristics. The fourth chapter is devoted to a classification of idiocy. After

a consideration of the classification which has been proposed, Dr. Ayres suggests whether a more accurate one might not be based upon some of the senses or desires affected instead of upon any indications of intellectual aptitude or deficiency.

"The sensation of hunger," he remarks, "is among the first manifestations of animal life. It generally may be observed soon after birth, and continues throughout life to indicate a healthy or unhealthy condition of the organism. Some idiots manifest no sensation of hunger, others do, but make no efforts to satisfy it, while another class not only have the sensation, but will use efforts to procure food. It is true dementia may assume these various features, and the subject may manifest no wish for food; but it need only demonstrate that the individual has sunk to the lowest type of idiocy, which may or may not be permanent. I am, to some extent, aware of the presumption of any suggestion from one who only makes deductions from the observations of others, but will venture the inquiry whether a total absence of desire for food may not indicate the lowest class, or 'Profound Idiocy;' a desire for food, but an insufficient amount of instinct or intelligence to seek it, represent 'Idiocy;' a desire and intelligence enough to seek it represent the third, or 'Superficial Idiocy.'"

The most desirable classification of idiocy in reference to the education of those who are its subjects, would be one based, not merely upon the different grades of intellectual and moral development exhibited in different individuals, but, also, if it were possible, upon the susceptibility for improvement there exists in each form and grade of mental imbecility. How far such a classification can be effected, so as to render it susceptible of a practical application, we shall not pretend to decide. A more intimate acquaintance with the causes and forms of idiocy may probably lay the foundation for its accomplishment.

The degree of idiocy present in different cases is the subject of chapter fifth, while those of the two succeeding chapters are the number of idiots in the United States, and their condition. The causes of idiocy are considered in chapter eight; and in chapter nine, the important question, Can idiots be educated? The subjects being closed in chapter ten, by some general reflections. The remaining six chapters treat of cretinism, its causes, physiognomy, localities, number of its subjects, and their susceptibility to educational influences.

The report of Dr. Ayres, although it can lay but slight claim to originality, is nevertheless replete with instructive matter, and will be read with the deepest interest. Its scope and arrangement, and the nature and form of the materials it embraces, are such as to preclude the attempt being made by us to present an analysis of its several chapters. To notice, even with the utmost brevity, the leading topics discussed by the author and the facts adduced in their support, would necessarily require the occupation of so large a space of the *Journal* as to exclude other papers that have an equal claim upon our attention.

The entire subject of idiocy and its treatment is one that presses itself with an almost irresistible force upon the attention of the medical men of the United States. Upon them will devolve, in a great measure, the labour of perfecting the system of education adapted to render the mentally imbecile competent to provide for their own support, and of carrying it into effective operation in every portion of our country. No one of greater magnitude and importance, certainly, can claim their attention and co-operation. The question of idiotic education is still unsolved; what has been already done towards its solution must, however, convince every one who will take the trouble to investigate it, that in its future developments all have a common

interest morally, socially, intellectually, and even pecuniarily, throughout their several relations—to their own households, to the community amid which they reside, to their country, and to the entire human family.

There are, as Dr. Ayres has shown, several considerations which make the United States a favourable field for observations in regard to all that relates to idiocy and the means adapted for its amelioration—

“Our wide extent of territory, embracing the different climates of two zones, with every grade of soil from the richest alluvial to the most sterile plains; every altitude from the sea level to that of perpetual snow; lake, river, and ocean shores; spring, well, hard, and soft water; while by constant migration and intermarriage, a perpetual change or mixture of temperaments is kept up, an unceasing influence of a foreign population who gradually commingle with our older inhabitants, thus mixing the blood of all nations under the sun, and affording in our growing country a wide field for scientific observation.”

But to properly cultivate this field there must be a concert of action in all portions of the land—“a concurrence of men of heart;” men who are willing to make sacrifices, and labour without remuneration in collecting and reporting facts having a bearing upon the subject of mental imbecility in its several grades, and the capability for education in each.

The next report is on Asylums for Inebriates, by Dr. C. McDermont, of Ohio.

Asylums for the reception of the intemperate exist in various parts of the United States. In these they are guarded from the means of giving way to the temptation to indulge in intoxicating drinks, by which, beyond its walls, they are constantly assailed, and for such a length of time as shall be sufficient, in conjunction with a well devised and judiciously administered moral and medicinal treatment, to effectually overcome their morbid appetite for alcoholic stimulants. The beneficial results derived from these asylums have been, so far, of the most encouraging character. Through them it has been shown, that a radical and permanent cure of intemperate habits and propensities may be obtained in a large majority of cases. And while common sense and almost universal experience would seem to prove beyond the possibility of doubt that an asylum is as necessary for the reception and treatment of inebriates as for the insane, the statistics which have thus far been furnished us of their operation show that as a curative means they are equally, if not more successful in respect to the first class of unfortunates, as in respect to the latter. Asylums for the inebriate, to re-echo the language of the report before us, constitute the great desideratum of the present age.

“It is not in the power of philanthropy to devise a scheme more fraught with benefits to the suffering race. Through its instrumentality thousands of our fellow-citizens will be rescued from ruin, and themselves and families restored to happiness and respectability. In all coming generations, the inebriate asylum is destined to be prominent among the charitable and remedial institutions of every civilized nation. It will stand as an ark of safety, a house of refuge to which the perishing drunkard may fly for deliverance, and from which he shall come forth in newness of life to pronounce blessings on the names of Turner, Butler, Francis, and all others who, through faith in the curability of the inebriate, shall nobly exert themselves for his salvation.”

The concluding report is on American Medical Necrology, by Dr. Christopher C. Cox, of Maryland. It contains short notices of the more prominent of the members of our profession, who have died recently. It does not admit of analysis.

There now only remains to be noticed the Report of the Surgical Section of the Association. This report embraces besides an abstract of the minutes of the section drawn up by the secretary; a paper on the various surgical operations for the relief of defective vision, by Dr. M. A. Pallen, of St. Louis, Mo.; a communication from Dr. Joseph McDowell, of St. Louis, Mo., on the improvements in the art and science of surgery, during the last fifty years, and one from Dr. Lewis A. Sayre, of New York, on morbus coxarius, or hip disease.

The report from each of the sections is prefaced by a brief minute of its proceedings—to which, in that from the surgical section, is added an account of the discussion which took place upon the reading of Dr. Sayre's communication. As to the propriety of inserting in the published Transactions even an abstract of the minutes of the proceedings of the several sections a reasonable doubt may suggest itself, but we believe there can be but one opinion entertained as to the impropriety of publishing so meagre and profitless an outline of the discussions which take place at the meetings of the sections in regard to any of the subjects which may be brought before them, as that given in the report of the proceedings of the section of surgery—an outline that is neither calculated to do justice to the speakers, nor to confer credit upon the Association. If the discussions which take place in the several sessions are to be recorded, it should be done in a manner which will render them available for scientific and practical purposes; and, to insure entire accuracy, before the discussions are published, they ought to be submitted for revision to the parties who had participated in them.

The paper of Dr. Pallen is not such a one as we should have expected to find among the Transactions of a body which, like the American Medical Association, professes to represent the talents, and to wield the influence of the medical profession of our country for the elevation of the character and for the enlargement of the attainments of its members. The paper under consideration cannot present the slightest claim to originality. It is simply a compilation of the leading facts and deductions furnished by standard authorities on the subjects treated of, not, upon the whole, very well arranged, nor couched, always, in the most accurate language. It contains no important facts drawn from the personal observations of the author. Nothing, in fact, which is not far better set forth in the leading authoritative works on ophthalmology, with which our libraries are so abundantly supplied. Dr. Pallen proposes, he tells us, to complete in a future communication the history of the several defects of vision not yet treated of by him. If the promised communication is to be of the same character as the one under consideration, we trust that it may not be ordered for publication. It is high time that the printed Transactions of our national medical congress should be protected from the insertion of mere compilations on any subject—of communications destitute of originality in respect to the facts they comprise, or to the deductions which the author bases on such facts. A single report, presented at each session of the Association, which is calculated by the exhibition of new and more full and accurate observations to enlarge the common fund of medical knowledge, or to render more intimate and exact our acquaintance with the etiology, pathology, and therapeutics of those diseases which we are called upon daily to treat, will redound more to the honour of the Association, and confer far more benefit upon the entire profession of our country, than a multitude of voluminous communications upon "things pertaining to the science and the art of

healing," which present nothing but that with which every well read medical man should be already familiar.

The report of Dr. McDowell on the improvements which have been made in surgery during the last half century, is neither distinguished by the correctness of its style, the purity of its language, the dignity of its manner, the usefulness of its matter, nor the fulness or exactness of its history of the improvements of which it professes to treat. It is a rambling, garrulous production, as utterly destitute of dignity as it is of reliability. We are utterly surprised that the section before which it was read should have tolerated it to the end, and, if possible, even more so, that it should have been willing to assume the responsibility of recommending it for publication in the Transactions of the Association.

The communication of Dr. Sayre is on a subject of the deepest interest. Whether we take into consideration the frequency of its occurrence, the class of patients among which it occurs, the obscurity of its early symptoms, and the deformity which is so liable to result from it even when it is most successfully managed, it is evident that every communication which professes to throw any additional light upon the causes, predisposing or exciting, of morbus coxarius, and upon the true character of the morbid condition upon which it depends, or which proposes to introduce us to a safer, simpler, and more efficient plan of treatment than that now pursued, must necessarily command our serious consideration.

Dr. Sayre assumes the position that the disease of the hip of which he treats—known among surgeons as morbus coxarius—is not always, nor even very commonly, the result of constitutional disease—of a general strumous cachexia, as is generally supposed; but, on the contrary, that in the majority of cases it is produced by accidental causes affecting individuals of a healthy, nay, even, in many instances, of a robust constitution. The emaciation, anæmia, and depraved nutrition by which the disease, in its progress, is almost invariably attended, are considered by him as in every instance the consequences of the local disease.

As a deduction from this pathology of hip-disease, Dr. Sayre suggests a strictly local treatment for its cure. He directs that, in the first stage of the disease, the affected joint be placed at perfect rest by a suitable apparatus which is also adapted to relieve the inflamed synovial membrane from the pressure of the head of the femur, while motion, to a certain extent, of the joint is, at the same time, permitted. In the second stage he proposes, by puncture or subcutaneous incision of the articular cavity, to relieve the latter from the morbid effusion by which it is now distended, and which augments and keeps up the irritation of the part; and, finally, so soon as caries of the head of the femur is clearly manifested he points to the operation of excision of the dead portions of bone as a certain means of eradicating the disease. After the operation he proposes, by appropriate and well-adjusted splints, to place the joint in a position best adapted to favour its healing, while such an amount of motion is preserved in it as to render the limb a useful one.

It is not our intention to enter into any extended criticism of the views, whether pathological or practical, advanced by Dr. Sayre in the paper before us. That his pathology is a mere assumption, unsustained by any well arranged and carefully analyzed series of observations, seems very certain. That cases may occur of disease of the hip-joint, the result most generally of some violence or other injury inflicted directly upon the part, is by no means improbable. But in respect to the particular hip affection known as morbus

coxarius, all the facts we possess would seem to point most unequivocally to a general serofulous taint of the system as constituting, in every instance, the predisposition to the local disease—the source from which the latter derives all its pathological characteristics even in the cases where its exciting cause may have been clearly traceable to the influence of cold—to a sprain or some other injury implicating directly the affected joint. All who have had frequent opportunities of studying hip disease must have been struck, we think, with the unmistakable signs of the strumous diathesis by which every case was attended.

Of the treatment recommended by Dr. Sayre we have very little to say. We are not, as yet, in possession of all the materials necessary for the formation of any very positive conclusion in regard to its applicability and results.

In respect to the extension splint originally proposed by Dr. Davis, but which Dr. Sayre would appear to claim (rightfully or not we have not the facts to enable us to say) the credit of having introduced into use in the disease under consideration, and more fully developed its proper mode of application in order to derive from it the greatest amount of good, it is evident that its employment cannot fail to be of advantage from the very inception of the disease, whether we recognize the latter as strictly local or the result of a general dyscrasy. The only novelty possessed by the splint is in its materials and mode of construction, the application of the principle upon which it acts to the treatment of hip disease has been long known. It was clearly taught and ably enforced by the late Dr. Physick in his surgical lectures.

The proposition to puncture the articular capsule of the hip to permit the discharge of its vitiated contents strikes us as being, in the present state of our knowledge, one of questionable propriety. The description of the operation given in the report before us is far too loose, and the facts adduced in support of the judgment of the author as to its beneficial results are too few and indefinite to satisfy the cautious inquirer.

In justification of the proposition to excise the diseased head of the femur so soon as its carious condition is satisfactorily made out, as a means of saving the life of the patient and preserving for him his limb, with a fair chance of a useful amount of motion in the hip-joint, Dr. S. has collected all the cases he could find on record in which the operation has been performed, and has arranged them chronologically in tabular form. The cases amount to 110. In 36 of them death ensued; *two* are reported as unfavourable, while in 72 recovery ensued, with a more or less useful joint.

The table of cases referred to will not, we are convinced, bear the test of a close scrutiny. It is very certain that in many of the cases included in it, the excision at the hip-joint was not performed because of the presence of hip disease but to remedy the effects of chronic rheumatism, of injury from gunshot wound, or in consequence of spontaneous separation of the head of the femur, or of necrosis from injury. More than one of the cases reported as successful, terminated, in fact, fatally; while Cases 9, 15, 52, and 60, are, manifestly, merely reduplications of Cases 18, 16, 65, and 89. We shall thus have to reject some 34 cases from Dr. S.'s table of "excisions of hip-joint for caries;" and we think it probable that a careful examination into the subsequent history of the remaining cases would show that in some of those which are reported as recoveries the patient ultimately died. This is certainly true in respect to cases 26 and 48. The last of which is reported in full in Barwell's work on diseases of the joints.

D. F. C.

ART. XI.—*A System of Surgery, Theoretical and Practical, in Treatises by Various Authors.* Edited by T. HOLMES, M. A., Cantab., &c. In four volumes. Vol. I. containing General Pathology, and Vol. II. containing Local Injuries, Diseases of the Eye. London: John W. Parker & Son, West Strand, 1860, 1861. 8vo. pp. 825 and 895.

THIS is a library of monographs on surgical topics, by men of eminence and experience, selected for the especial purpose of treating what each one was believed to be best qualified to discuss. In the words of the preface,

“The object of the book is to unite into a complete system the opinions and experience of many men, most of them hospital surgeons in London, and most of them writing on subjects of their own choice. As each subject must be treated with something of the completeness of a monograph, the work must necessarily be voluminous; but both contributors and editor have done their best to present each essay in as moderate a compass as the topic would allow.”

Such a plan of publication has always been a favourite one. It has succeeded well, as applied to the teaching of medicine; but, although occasionally projected, and long wanted, it has not hitherto been attempted in a general treatise on surgery. Partaking of the character and comprehensiveness of the cyclopædia, this collection of “treatises” affords many of the advantages and more of the freedom of preparation and arrangement of a systematic work; and hence, for the best purposes of teaching, it is perhaps the most useful form which could be adopted.

With a good table of contents, such as we find in each volume, and an equally good index—such as will doubtless be prepared—the particular method of distribution is of very little consequence. All classification must, of course, be arbitrary; and where there are so many different topics, this classification must be more than usually subject to contingencies, and governed by convenience as much as by any positive logical requirement.

The editor’s arrangement, for which he holds himself responsible, is as follows:—

“I. The diseases which affect the whole system are first described, and this part comprises the essays ending vol. i. p. 529.

“II. The next part treats of injuries which either involve the whole or a large part of the body, or which may be met with in any region. This extends to the end of the essay on gunshot wounds, at the commencement of the second volume. These two parts comprise the whole subject of surgical pathology.

“III. The various local injuries are next described; and in this part the anatomical order has been followed, the body having been divided into eight regions—the head, face, neck, thorax, back, pelvis, upper and lower extremity. By this plan it was thought that the injuries which affect the same parts, and which in practice have to be diagnosed from each other, would be brought into the same part of the book and under the same author.

“IV. The principles of operative and minor surgery, and of the employment of anæsthetics, follow the essays on local injuries.

“V. The next part comprises the surgical diseases of the various organs of the body. These have been arranged according to the function of the parts affected: as diseases of the organs of special sense—the eye, ear, and nose: of the organs of locomotion—the bones, joints, muscles, tendons, and their sheaths, &c.

“VI. An appendix completes the work—comprising the principles of surgical diagnosis, of the surgical pathology and treatment of childrens’ diseases, the

construction and management of hospitals, and various miscellaneous matters which it was found difficult to bring under any of the previous heads."

This plan comprehends a full body of surgical theory and practice, including many important topics which are not alluded to in ordinary systematic works, and others which are very slightly and incidentally touched upon. Whatever merely critical objections may be urged, it will probably be found to answer as well as any other for really practical purposes.

It is very difficult to present a fair idea of the contents, so varied in their nature, of two octavo volumes of over eight hundred pages each; and this difficulty is not lessened by the style of condensation which has been practised by the authors of the most important papers. As a whole, the collection certainly presents, within a comparatively small compass, a very able, clear, and trustworthy view of the portion treated, of the general subject of the "system," in accordance with the latest and best light that has been thrown upon it. A work which is the result of the care, learning, and practical experience which have evidently ruled in this, and emanating directly from the great hospitals of London, could not fail to be in the highest degree interesting and valuable as the authoritative exponent of the knowledge accumulated in those unsurpassed fields of study and practice. We look upon the present school of London as at least equal to any in the world, and to those who speak only the English language, decidedly the best; and hence we expected to find, in a collection of essays by such men as Paget, Simon, and their accurate and accomplished associates, an offering to surgical science and practice which would honourably represent their school, and materially aid the progress of genuine surgery, by establishing, in a definite manner, some of the latest waymarks. Nor have we found anything, in an unavoidably hasty examination, considering the character of the work, to justify a sense of disappointment. The papers are naturally and almost necessarily unequal, but all are good and some are excellent. Some may seem, and perhaps are, too brief; and, chiefly from the desire for brevity, unnecessarily dogmatic. The inherent obligations of the duty, however, must afford the best excuse for these immaterial shortcomings in its performance. Practical hospital experience, on the largest scale, is evidently the basis of the most if not all of the articles; so that more or less expression of authority is very natural, as well as proper, in a series of essays which are addressed to the students and practitioners of Great Britain, in demonstration of the latest views and practice in the London hospitals, by the surgical teachers of those schools, whose names and reputations are already so familiar to the English reader. There is, however, no deficiency of references to cases and authorities, American no less than European, and especially to statistical data and historical summaries, in most of the papers, wherever they seem to be desirable and compatible with the general plan. Some of the articles are especially valuable, in the assistance they afford by their citations, for more extended investigation; and, although there is no such thing among them as a mere compilation, their topics are generally treated with a discriminating regard to other authorities, so far as the necessary condensation would allow.

The first volume commences with an excellent treatise on inflammation, one hundred and forty pages in length, by Mr. Simon. This is a philosophical and practical monograph upon a subject which still maintains its paramount importance as the introductory topic in the study of surgical disease. It forms an admirable preliminary essay, and is so complete in itself, so clearly and comprehensively arranged and illustrated from every point of view, so

accurate in its delineations and just in its reasonings, and so full in its historical references, that it could not fail to be of great service, if issued by itself in a separate form.

We are able to quote the concluding paragraph only of a section of five pages devoted to cautions as to the application of antiphlogistic treatment. After a very full and discriminating consideration of the proper management of the different forms and stages of inflammation, with reference to the use of depressing and supporting agents, he closes his excellent and timely remarks against the abuse of antiphlogistics, with the following still more needed and appropriate warning against the opposite extreme:—

“Nor is it only the depressant treatment which may be overdone. Indeed, in the present day, fashion sets in the other direction; and perhaps not a little harm results from misapplied alcoholization of the sick. The cases in which life is saved, even during inflammation, by the judicious use of alcoholic stimulants, are infinitely more numerous than those where it is saved by bleeding; and the use of such stimulants, in certain cases of inflammation with debility, is among the most important resources of medicine. But the student must learn not to abuse this great medicinal agent; not to prescribe it as a thing of routine, in all cases of inflammation bearing a certain name; but always to give or withhold, and (if giving) always to proportion it, according to the special requirements of the individual case.¹ For, if treatment is to be indiscriminate, medical advice is but a sham. And there may be death in the practice of Van Dunk as well as under the prescription of Sangrado.” (p. 132.)

Mr. Simon terminates his tract with a very interesting chapter on what is termed book references. In this he does not attempt a bibliography, which would be only in the way, however limited and select. His idea was to give a sort of *catalogue raisonnée* of the leading steps, as shown in the different authors—“a very general statement of what,” in his opinion, “have been the most important *momenta* towards developing the theory of inflammation taught by him in the preceding pages.” Although this “statement” is offered with diffidence, it will doubtless stand the test of criticism, and may be regarded as an effective appendix of *pièces justificatives* to the author’s treatise, no less than a very useful guide for his readers.

Next comes a well-considered paper on abscess, by Mr. Holmes Coote. There are several practical remarks in this which we should like to dwell upon as worth attending to. A single quotation will have to suffice. It is of the two lower paragraphs on the first page (141), in relation to pus.

“There are two doctrines as to the origin of pus. First, that the fluid is formed out of the exuded plasma of the blood (Rokitansky). Secondly, that it is formed by a rapid cell-growth, set up by irritation in the parenchyma itself (Virchow). The cells from which Virchow considers pus-cells to be generated, are the corpuscles of areolar tissue (*Bindegewebs-körperchen*), which he supposes to permeate nearly every part of the frame. This latter view is the one more generally adopted, although the universal existence of these corpuscles has yet to be proved. Modern pathologists do not regard pus as degenerated lymph. The white corpuscles of the blood, the lymph-corpuscles of the chyle, and pus-corpuscles, are identical and indistinguishable. They differ in their mode of origin.

¹ “Without referring to cases in which wine or brandy has been wrongly given to patients who rather required lowering treatment, the writer can say that, on various occasions, he has seen a convalescent suffering considerable nervous disorder from merely continuing the large quantity of stimulus which had been necessary to him during earlier periods of his illness. And in one such case the cause of the inconvenience was not suspected, till it had occasioned the patient a first attack of epilepsy.”

The two former are generated within a vascular system, normally. Pus is generated external to the vascular system, abnormally. Lymph-corpuscles cannot escape from the blood, and pus-corpuscles cannot enter it, except by rupture of vessels; consequently the latter cannot be regarded as a degenerated form of the former.

"Inasmuch as pus consists of myriads of cells swimming in serum and formed at the expense of the tissues, it follows that prolonged suppuration is accompanied by a corresponding amount of emaciation and waste of the body. Pus may be readily removed by the absorbents. The serum is taken up as any other fluid. The pus-cells either dry up, when they form a cheesy pultaceous mass, which may ultimately become cretaceous, and has often been mistaken for tubercle; or the fatty matter undergoes granular disintegration, the cell-wall softens, and the whole is removed in the usual manner."

Next in order we have a characteristically clear and instructive but short chapter on sinus and fistula, by Mr. Paget. Among the methods of treatment, *drainage* is specified, and the perforated caoutchouc tube of M. Chassaignac is referred to as a "happy invention, applicable to a great number of cases; but chiefly to those in which a sinus or incomplete fistula depends mainly on pus collecting at a level below, or distant from the aperture of discharge, or more generally, when pus is apt to be retained." He gives some instances of these conditions, which need not be repeated here. He also refers to the "seton of one or more wires or silk threads," as one "which may be usefully employed, in some fistula in which the track is too small for a drainage tube," "to vivify the granulating walls and bring them to coalescence." There is no doubt that these agents have caused some disappointment in badly-chosen cases, and have been thus involved unjustly in more or less ill repute, but it is equally certain that Mr. Paget's recommendation is well founded, and that they are extremely serviceable when properly employed.

Four other articles are contributed in the first volume by Mr. Paget, all of them on important subjects, and, as a matter of course, able and sufficiently exhaustive. They are on *ulcers* (23 pages), *tumours (innocent)* (146 pages), *contusions* (7 pages), and a most interesting one, of 40 pages, on *wounds*.

The remaining treatises in the volume are, a second by Mr. Holmes Coote, on *gangrene* (21 pages); one on *erysipelas and the allied diseases* (40 pages), by Mr. Campbell de Morgan; one on *pyæmia* (31 pages), by Mr. G. W. Callender; one on *tetanus* (21 pages), and another on *animal poisons* (31 pages), by Mr. A. Poland; a short one on *delirium tremens*, by Dr. A. W. Barclay; three on *scrofula*, *hysteria*, and *collapse*, respectively, by Mr. W. A. Savory; a full and practical summary on *syphilis* (87 pages), by H. Lee; a careful and comprehensive one on *cancer* (72 pages), by Mr. C. H. Moore, and another on *wounds of vessels* by the same author; one on *burns and scalds*, *accidents from lightning*, and one on the *general pathology of dislocations*, both by the editor, Mr. T. Holmes; and one of fifty-six pages in length, giving a very good exposé of the *general pathology of fractures*, by Mr. T. K. Hornidge. The list here presented will give some idea of the amount of labour bestowed upon the preparation of the volume. It will, at least, exhibit the practical importance of the different topics treated and the high position of the writers. The authors' names are well known to journal readers and students of recent surgery, as those of active and accomplished hospital surgeons, some of long-established eminence and a few but recently known to fame beyond the circle of the London societies and schools. The essays are not enumerated above in the order which

they occupy in the volume itself, being here grouped together, for convenience of space, in the order which the names happen to take in connection with the first essays to which they belong.

Of these different papers, those which are most likely to attract attention are that on wounds by Mr. Paget, Mr. De Morgan's on erysipelas, Mr. Savory's on collapse, Mr. Lee's on syphilis, and the two papers, respectively, of Messrs. Hornidge and Holmes, on the general pathology of fractures and on the general pathology of dislocations.

They are all highly interesting, and convey the requisite principles and precepts in a comprehensive and practical manner, keeping always in view the further development of the "system"; since they, as well as the other essays, are evidently introductory, referring frequently, for additional illustration, to subsequent portions of the work. The paper of Mr. Paget, on wounds, and that of Mr. Hornidge, on the general pathology of fractures, are particularly instructive, and afford evidence of much careful elaboration and superior professional judgment.

The second volume is occupied with local injuries of the body, and with diseases of the eye. The latter subject is placed at the end of this volume, out of its originally assigned position, in order to make way for a more convenient arrangement of other portions, and because its special nature rendered it a matter of comparative indifference in what part of the work it was introduced. The nature of the subject, and especially its extent, as understood by such competent authorities as Mr. Dixon, would quite as well, we think, have justified its omission altogether. Such a thing as a complete and thorough practical treatise on the diseases and injuries of the eye, which can be regarded as a decent substitute for the larger works expressly devoted to the subject, is not to be found in any of the systematic works on surgery, notwithstanding that each one has made the effort to supply the deficiency at the expense of space which, in some if not all cases, might be much more usefully employed. Mr. Dixon's essay on this occasion is the best attempt of the kind, and probably as creditable and useful a production as the circumstances would admit. Still it is but a meagre outline or abstract; and although it may comprehend a fuller list of topics, can hardly be regarded as equal, for practical purposes, to his already published and very successful "Practical Study." It differs from this, however, in being more systematic, and has the advantage of presenting the author's latest experience in regard to the questions of the day. Dr. Dixon treats of his subject, under the usual heads, in twelve chapters, which occupy two hundred and twenty-three pages—much the largest share, thus far, of the whole work. This amount of space and a good deal of condensation, not always observed, however, have enabled him to present an epitome which may serve very well in the absence of a separate treatise, but ought not to be allowed to take its place.

The first paper in the second volume is a first class one—of unequalled interest to American surgeons—by Mr. Longmore, the Professor of Military Surgery at Fort Pitt, Chatham, and Deputy Inspector-General of Hospitals, on *gunshot wounds*. This essay may be regarded as the result of the combined and adjusted experience of the armies of Europe; having the advantage of the experience accumulated in India, in addition to the very large amount individually acquired by the author and his colleagues; and being largely based upon the records of the older as well as of the more recent campaigns on the European continent.

It is not only agreeably and perspicuously written and conveniently

arranged, but it teems with practical remarks on every page, and is so unusually rich in illustrative cases, and general observations drawn from invaluable sources at his command, that we should be glad to see it circulating everywhere among our medical officers who are now engaged in the field. There is no chapter or book extant in this country, and none, we suspect, abroad in the English language which approaches it in the effective and thorough manner with which it exhibits this all-important subject.

Material results must be looked for, doubtless, in confirmation and correction of previous views and practice, from the experience to be gained in the present struggle in our country, which, for the first time, and, we trust, the last, has assumed the dimensions of a European war; but it is only through such monographs as this, and the "Notes" of McLeod, and the still authoritative and indispensable commentaries of Guthrie that we can hope for the spread of the needed amount of information at the start among the great mass of our military surgeons. Of course, the continental works of similar character, which the recent wars have developed to an extent hitherto entirely unequalled, are within the reach of considerable numbers of our best men, who are far from idle or indifferent in their use of them and of all the British sources; but the publications of the country must be looked to for the guidance of the majority, who will be left to their own discretion in the performance of their surgical duties and consequent acquirement of experience. The practical intelligence and intuitive sagacity of our countrymen, ever ready to listen to the dictates of common sense and to meet an emergency with a successful expedient, will certainly develop methods, and, perhaps, new principles hitherto unthought of; while we hope to see the inevitable opportunities no less useful in enabling them to determine still unsettled questions, and in arousing inquiry in regard to others which have been too hastily allowed to rest. If there be any plausibility in these self-evident views it is equally reasonable to desire, as already hinted, the republication of such excellent instruction as that of this and of three or four of the papers in these two volumes. Especially would we urge the reprinting of this one on gunshot wounds and the succeeding ones on injuries of the different regions of the body; so as to bring them into the hands of those who would appreciate them as no others could just now, and whom they may never reach in any other way.

After referring to Mr. Guthrie's remark, in regard to the influence of the Peninsular war between 1808 and 1815, that the surgical principles and practice which prevailed at the commencement were superseded on almost all important points at its conclusion; also to Mr. Guthrie's quotation from Sir Astley Cooper, to the effect that the art of surgery received from the practical experience of that war an impulse and improvement unknown to it before, he goes on to say—

"The still more recent military operations in Algeria, in Schleswig-Holstein, in the Crimea, and in India, have afforded the opportunity of testing practically the applicability to army practice of some of the great improvements which have been accomplished in the civil practice of surgery in Europe since the termination of the war in 1815. Among these may be particularly enumerated the avoidance of amputation of limbs by recourse to excision of joints; resection of injured portions of the shafts of long bones; mitigated amputations, by removal only of those terminal portions of the extremities which had been destroyed by the original injury; and the practice, generally, of what has been styled conservative surgery. In these wars, too, the value of chloroform, as an anæsthetic agent in military surgery, has been fully established. They have, also, especially illustrated the influence of various states of health and climates on the results of gunshot wounds."

These and other effects which he alludes to, of recent European experience, are well known in the United States; but they cannot be too often referred to in considering the subject in relation to the thousands of wounded, who are destined to be under the treatment and observation—now and for months to come, in all climates, and under every conceivable influence—of hundreds of practitioners of every grade of qualification, few of whom can claim the slightest previous personal experience as military surgeons.

Mr. Longmore's treatise occupies ninety-four pages. It is followed by one of about the same length on *Injuries of the Head*, in which this important and difficult topic is treated in a most careful and thorough style, by Mr. Prescott Hewitt. Next comes a shorter but equally thorough one on *Injuries of the Back*, by Mr. A. Shaw; another, also excellent, by Mr. Holmes Coote, on *Injuries of the Face*; a third, also full of practical learning and precept, by Mr. H. Gray, on *Injuries of the Neck*; a fourth, of great interest and value, particularly now, by Mr. Alfred Poland, on *Injuries of the Chest*; a fifth, of similar character, by Mr. George Pollock, on *Injuries of the Abdomen*; a sixth, of the same practical fulness and accuracy, by Mr. J. Birkett, on *Injuries of the Pelvis*; and, lastly, two excellent chapters by Messrs. W. H. Flower and Carsten Holthouse, respectively, on *Injuries of the Upper Extremity* and *Injuries of the Lower Extremity*.

These topics are treated with considerable fulness, and a sufficient attention to details which, without any disposition to a waste of words, presents us with something more than the abstracts that might be excused in a volume of so much bulk. We have been exceedingly interested in these papers, and are glad to find the evidence, in their completeness and laborious regard for the requirements of the system, of a determination on the part of the authors, industriously, to present the science and art in their proper shape and proportions, and to sacrifice nothing to convenience or policy in injurious attempts at condensation.

There is so much that is instructive, even to the experienced practitioner, in their practical and discriminating manner of dealing with mooted questions, none of which appear to be neglected; their abundant illustrations, drawn at once from an unlimited field of hospital experience, and their candid and sensible mode of handling the whole subject, that these particular portions of the work possess a value which places them far above any publications on the same topics yet issued in the language. They fully justify the expectation that the complete work will really present to the professional reader a fitting monument of the latest progress of modern surgery. As such it ought to be within the reach of every earnest student and practitioner, and of every hospital surgeon.

E. H.

ART. XII.—*On Food and its Digestion: being an Introduction to Dietetics.* By WILLIAM BRINTON, M. D., F. R. C. P.; Physician to St. Thomas's Hospital, and Lecturer on Physiology in that Institution. With forty-eight engravings on wood. London, 1861: Longman, Green, Longman & Roberts. 8vo. pp. 485.

WITH Dr. Brinton the study of the apparatus and function of digestion has been a favourite specialty. He is well and favourably known as the author of the articles "Stomach and Intestine," in the *Cyclopædia of*

Anatomy and Physiology; of an excellent essay on the "Pathology, Symptoms, and Treatment of Ulcer of the Stomach;" and of a larger work on the "Diseases of the Stomach." In the treatise now before us we recognize another valuable addition to the literature of a subject with which our author is thoroughly conversant.

In this volume the process of digestion is described in its natural connection with the food on which it operates, and with the purpose which that food, as thus elaborated, fulfils. The structure and function of the organs of digestion are portrayed with unusual care and minuteness; while the complex relations of digestion to nutrition are illustrated by closely associating in the narrative the details of the demand for food with those of that process of bodily waste by which this demand is dictated. The study of food is made to harmonize with that of digestion; and while the whole subject of digestion is treated of as a natural subdivision of the institutes of medicine, the physiology of food is regarded as constituting a basis for the practice of physic, in reference both to the prevention and to the cure of disease.

The work is divided into thirteen chapters. The first treats of bodily waste, or the metamorphosis of tissue, and of the necessity for food occasioned by this disintegrating process. Alimentary constituents, and the nature of food are discussed in Chapter 2. Chapters 3, 4, 5 and 6 are occupied with an elaborate description of the digestive act. The various kinds of animal and vegetable food are considered at length in the 7th and 8th chapters. Chapter 9 treats of condiments; Chapter 10, of tea and coffee; and Chapter 11 of alcoholic drinks. Chapters 12 and 13 are devoted to cookery and the choice of food or diet. To these chapters are added two appendices, one of which treats of vomiting, and the other of dietaries.

In the human organism two powerful champions, waste and repair, struggle incessantly for the mastery, and in thus striving, impart each to the other, paradoxical as it may seem, continued power and activity. This conflict, in its varied aspects, constitutes the complex process which we call life. The conditions of it are few and simple, but they are also essential. For heat, air, water and food are the busy auxiliaries, aiding now one and then the other of these two combatants. Waste necessitates repair, and repair presupposes waste. Waste cannot go on long without repair, nor can repair continue unless waste has been previously operative. Herein lies the mystery of life; for we may philosophically regard disintegration or molecular death as the first in the series of phenomena which constitute life. This form of death, or gradual destruction is necessary, as the physiologist well knows, to preserve the life of the organic being as a whole; or, in other words, to rescue it from somatic death. But this disintegrating process, if allowed to go on unchecked, will itself, sooner or later, bring about the entire cessation of life-actions. In the reparative process the check is found. Assimilation and disassimilation are sometimes nicely balanced; at other times, first one and then the other predominates. In early life repair gets the better of waste, as shown in the extraordinary activity of development and growth; in middle life these two actions are about equal in power and results; while in old age both waste and repair decline in activity, but the former more rapidly than the latter. Hence, while the young being gains in weight more than it loses, the aged one dwindles more and more as he approaches the close of his allotted term of life.

The channels of this waste are four in number. In the language of our author—

“The excrement and the urine respectively convey away a moist solid mass, and a much greater bulk of a liquid containing a large proportion of dissolved solids. The skin, besides that gradual loss of substance from its surface, which, under many circumstances, becomes perceptible to the naked eye, insensibly discharges vapours which are easily augmented and aggregated into the liquid state of sweat. The lungs, likewise, discharge vapours and gases; of which the former are often seen to collect as drops of liquid upon neighbouring objects, while the latter may be recognized as carbonic acid and ammonia by the application of appropriate tests to the air exhaled. * * * *

“The carbonic acid given off from the body daily may be estimated at about 2 lbs.—a weight which, at ordinary pressure and temperature, would correspond to a bulk of about 17 cubic feet. Of this quantity, it is probable that a single ounce, or half a cubic foot, is all that finds its way out by the skin; the remainder being exhaled from the lungs in the air expired, the carbonic acid of which is about a hundred-fold more abundant than that of the inspiratory air (.04 and 4 per cent. respectively).

“The quantity of water daily set free seems to be about 6 lbs. Of this rather less than half appears to be given off in the feces and urine (the latter containing about ten times as much as the former), and rather more than half by the skin and lungs. Of the latter moiety, again, the whole of which is often included under the term transpiration, the pulmonary share may be regarded as not more than 1 lb.; the skin furnishing the remaining 2–2½ lbs., usually in the form of watery vapour. * * * *

“Urea and its congeners are justly regarded with extreme interest in respect to the quantitative aspect of nutrition. So small an amount of nitrogen is given off by the skin and lungs, whether pure or in combination (ammonia, &c.) and even by the intestinal evacuations (barely 3 per cent. of the daily loss of azote), that it is by this constituent of the urine, which contains nearly 50 per cent. of nitrogen, we may best measure both the waste of the azotized tissues, and the quantity of azotized food necessary to replace it.

“About 480 grains, or 1 oz., would seem to be a tolerably exact estimate of the urea excreted daily by a healthy male adult. Reducible to scarcely more than half this quantity for the female, and a quarter for the child or the aged person, and doubled, or halved, by diseases in which bodily waste exceeds (fever) and falls below (chronic heart disease) the standard respectively, it is equally amenable to two other sources of variation. Of these, one, as might naturally be expected, is apparent rather than real, being such a diminution in the urea excreted from the body by a diseased kidney as is partly counterpoised by its allowing the quantity retained to accumulate in the poisoned blood. In the other the diminution or increase of quantity is dictated by the azotized constituent of the food; being raised by a flesh diet, lowered by a vegetable one, and, lastly, reduced to a minimum (or dietetic zero) by the withholdance of all azotized food.

“Uric acid and ammonia, occurring in very small proportion¹ in healthy urine, may be estimated as together amounting to 4 per cent. of the above quantities of urea and of nitrogen.

“The salts set free from the body are far too imperfectly known, both as regards their quantity and quality, to justify any exact quantitative estimate. In respect to the skin, the sweat, which is said to contain about 1 per cent. of fixed ingredients, includes among these much chloride of sodium, and further liberates much ammonia in combination with hydrochloric and organic acids. Its sebaceous secretion seems to be chiefly margarate and oleate of soda and ammonia. Its horny, epithelial desquamation, which contains about 1 per cent. of inorganic matter, yields phosphate (and carbonate?) of lime and magnesia.²

¹ According to Vogel, about 7 and 10 grains per day respectively.

² Anselmino in Tiedemann's Zeitschrift, Bd. ii. S. 321–342.

And even supposing the vapours or insensible perspiration to contain less of saline constituents than the composition of the liquid sweat would seem to imply, the total inorganic salts of this daily loss must amount to something considerable (50–100 grains); while its salts of ammonia presumably set free, in the liquid or solid form, a much larger proportion of this alkali than would be conjectured from that quantity of it which can be detected by the ordinary tests for this volatile alkali in the free state. The excrement probably dismisses from the body not more than 40 or 50 grains of salts daily, in addition to that larger and more insoluble saline constituent which it contains in the shape of alimentary residue. Phosphates of the earths and alkalies, sulphates, and but little chlorides, are its chief components.

"It is in the urine that we find the nearest approach to accuracy of estimate, as well as the largest items of waste, in respect to these ingredients of the bodily mass. The chief fixed salts of the urine may be regarded as setting free from the body daily about 4½ drachms of chloride of sodium, 4 of sulphates (chiefly of soda and potash), 2 of acid phosphate of soda, and 1 of phosphates of lime and magnesia.

"In addition to the preceding ingredients, however, the body evidently discharges, by every channel of excretion, other substances, only less worthy of notice in the circumstance of their smaller quantity. The albumen, epithelium, and fatty matters of the skin; the bile, mucus, and epithelium discharged from the bowels; the colouring and other extractive matters of the urine; and, lastly, the *quasi* albuminous film thrown down from the breath of animals when respiring in a confined space—all these *egesta* together considerably increase the total of waste, little as each may severally add to its amount. * * * *

"We may sum up our estimates of the daily bodily waste as follows:—

	Grains.
Carbonic acid	14,000
Water (8,400 of which are formed by combustion)	42,000
Urea (including carbonate of ammonia 20 grains?)	480
Other organic constituents of the urine, namely: uric acid (8), kreatinin (7), kreatin (½), lactic and hippuric acids (indefinite), together about	20
Salts, { by the skin 80 } { " feces 50 } { " urine 700 }	830
	57,330

"Hence, estimating from the researches of Valentin and others, that our typical man¹ consumes about 14,570 grains of oxygen daily, the replacement of all his *egesta* would leave about 42,760 grains to be supplied by his food, *minus* those small quantities of water or oxygen which are absorbed through his skin. In other words, the maintenance of the body requires about 6 lbs. of food and drink in the course of the twenty-four hours."

The precise origin of these varied representatives of waste in the economy is a question of profound importance, and one upon which the labours of the physiological chemist have as yet cast but an uncertain light. Thanks, however, to the investigations of Spallanzani, W. Edwards, Marchand, Vierordt, Robin and Verdeil, Bernard, G. Liebig and others, we are not without some valuable information upon this subject.

The carbonic acid exhaled from the skin and lungs appears to have a threefold origin. It is generated, in all probability, not in the tissues only, but in the substance of the blood-globules, and in the lungs, in consequence of the combination of puenic or pulmonic acid with the carbonates and bicarbonates of the blood, these being transformed into

¹ Perhaps we may find the nearest approach to accuracy in supposing these estimates to refer to a healthy male, 35 years old, 5½ feet high, and 10 stones in weight.

corresponding pneumates and carbonic acid evolved. It has not yet been satisfactorily shown that any portion of this gas is formed by the direct combustion of the carbon of the food. Its most important source seems to be the tissues, which, while they evolve it, absorb and assimilate large quantities of oxygen.

The water of the egesta is derived, in great part, from the aqueous portion of the blood; some of it comes from the various fluids of the body; some from the tissues, where it exists in a state of chemical combination, associated with different organic and saline bases; and, finally, some of it may be formed, as M. Barral thinks, and as our author maintains, by the direct union of oxygen with hydrogen, though of this there is no direct proof. On the contrary, there is reason for thinking that all the water which enters into the composition of the human organism is derived from without. The water of the ovum and the embryo, during development, is supplied at first from the mucus of the Fallopian tube, through the vitelline membrane; afterwards by the villi of the chorion; and, finally, from the maternal blood. After birth, water is furnished to the blood from the drinks and solid food introduced into the alimentary canal, and from the blood is, in part, transferred to the tissues. By measuring the quantity of fluid taken with the drink, and calculating in addition the proportion existing in the solid food, Dr. Dalton has found¹ that for a healthy adult man, the ordinary quantity of water introduced per day is a little over four and a half pounds. The researches, in another direction, of Lavoisier, Seguin, Valentin, and others, show that from a pound and a half to two pounds of water are discharged daily by the skin, a little over one pound by the exhalation from the lungs, and a little over two pounds by the urine—a quantity about equal to that taken into the body during the same period of time. In view of a fact like this, it does not appear necessary to resort to the combustive theory to account for the presence of any portion of the water contained in the human body. With regard to the generation in the animal organism of both water and carbonic acid by combustion, our author holds the following language:—

“In speaking of the formation of carbonic acid and water by the combustion of hydro-carbons in the body, it becomes necessary to qualify the sense in which such a phraseology can be usefully adopted. The chief fatty constituents of the body have a composition which may be generally regarded as answering to the formula $C_{10}H_8O$: in other words, to what would be a pure hydro-carbon, or combination of equivalent proportions of carbon and hydrogen, were it not that every tenth equivalent of the hydrogen is substituted by one of oxygen. Out of the body, all these hydro-carbons are easily made to undergo an artificial combustion, of which the chief products can be collected in the shape of carbonic acid and water. Hence, when we find that the body of a healthy male adult contains scarcely less than one-fifth or one-fourth of its weight (= about 32 lbs.) of adipose tissue diffused throughout its mass, and that the fat contained in this tissue is rapidly diminished under any circumstances which unusually tax the system; when we further find that the process of emaciation traced during life in the subcutaneous structures, can be verified by the microscope after death, and, as it were, followed through the various stages by which each fat-cell, each separate store-house, each minute bladder of lard, is emptied of its contents, so as to contain little more than serum, or even to collapse at various points of its surface into an absolute contact of its membranous cell-walls—we cannot hesitate to deduce, from the materials and products of combustion, and the evolution of heat, the actual occurrence of this process; which, by whatever

¹ Human Physiology, 2d ed. p. 54.

intermediate stages, evidently burns up the fat of the body into carbonic acid and water.

"The large proportion of fatty matter often taken in the food, together with the small proportion contained in the blood (which the greater part of the fatty aliment enters in the form of chyle), suggest that not only is fat slowly introduced into the stream of blood, but also that it is either rapidly consumed in the blood, or is soon set aside from it in the form of adipose tissue. Indeed, it is probable that both of these alternatives obtain. For example, we may estimate that the whole mass of the blood contains not more than $\frac{1}{5000}$ th part of all the fat stored up in the aggregate adipose tissues of the body. Hence, apart from the demands of the nervous tissues—which, whatever the quantity of fat they claim, evidently imply such an elaboration of this material as is almost a guarantee for that slowness of their waste we shall hereafter deduce from other phenomena—we might almost infer that, of the fat largely added to the blood by many kinds of food, a certain small proportion at once undergoes combustion in this fluid, while all in excess of this proportion is stored up as adipose tissue. Any further excess (which, by the way, would often be checked by the inability of the digestive organs to receive it) seems to find an intermediate destiny; a partial combustion in the shape of those oxidized fatty acids largely given off from the skin and lungs of certain animals, of man in the Arctic regions, and of dogs when fed exclusively on fatty substances.

"But can we refer these products exclusively to such a source? Certainly not. For just as the most elementary facts of a nutrition indicate that all the softer bodily tissues undergo a process of waste, and especially that the muscular substance is rapidly destroyed and renewed incidentally to its own contractile function, so a mere¹ comparison between the composition of the albuminous radicle of this tissue, and the urea which chiefly eliminates nitrogen from the body, shows that any process which converts albumen into urea must leave a large surplus of carbon and hydrogen, the ultimate destiny of which can only be accounted for by supposing their combustion to form part of the carbonic acid and water already alluded to.²

"Hence, while the urea dismissed from the body must in so far as regards its nitrogen, be referred to tissues containing this element: and to the various azotized tissues, in proportion to the rate at which they severally waste, whatever that rate may be; there is not one of these tissues, so far as their composition is at present known, which does not also claim to be considered as a subject of that combustion of which carbonic acid and water are the final products."

The combustion theory, originally advanced by Lavoisier, and afterwards materially modified by Liebig, has, until quite recently, been generally adopted by the medical profession as, in the main, the correct interpretation of the facts. The experiments of Dulong, however, upon the generation of heat in plants; those of Marchand upon the respiration of frogs in hydrogen gas; those of Regnault and Reiset upon the influence of different kinds of food upon the absorption of oxygen and evolution of carbonic acid in dogs, rabbits, and fowls; and those of Bernard upon the nervous system, have thrown great doubt upon the truthfulness of this theory, and, in conjunction with other facts, have led Lehmann, and Robin and Verdeil to criticise its inconsistencies in the most decided manner. Robin and Verdeil assure us that it is very doubtful whether any direct oxidation of carbon takes place in the body at all, and that very little, if any carbonic acid, is generated in this way.³

¹ Protein = $(C_{26}H_{25}N_4O_{10} + 2HO) = 2 \text{ urea } (C_2H_4N_2O_2) + 8HO + C_{22}H_{11}$.

² A statement of which fact, that exercise can for a time maintain the bodily heat against extreme cold, forms an illustration as old as the arts of hunting and warfare.

³ *Traité de Chimie Anatomique*, ii. 38, seq. 87, 168, 462, and iii. 185, seq.

"It was long believed," says Regnault (and many chemists still believe it), "that the heat produced by an animal in a given time is precisely equal to that which would be produced by the burning in oxygen of the same amount of carbon and hydrogen which is found in the carbonic acid and water exhaled in that time. It is very probable that animal heat is entirely produced by the chemical actions which take place in the organism, but the phenomenon is too complex to admit of our calculating it according to the quantity of oxygen consumed."¹ In relation to the formation of water in the body by direct oxidation, Bernard writes: "This question is full of interest, but has scarcely been investigated. Establishing a parallel between the chemical phenomena which take place in the living economy and those which can be produced in the laboratory, certain authors who have written upon nutrition have admitted the fixation of oxygen in the organism in a manner similar to that which takes place during combustion. * * * * The proofs of the formation of carbonic acid in living beings are abundant; but this is not the case with regard to the generation of water. This has been admitted theoretically, and as a necessary, chemical consequence of the oxidation of carbon, but the fact has not been experimentally demonstrated; indeed, the experiments which bear upon it tend to establish the contrary. * * * * The variations in the quantity of water in the blood are very well explained by the successive additions and subtractions of this element in the course of the circulation. No fact authorizes us to adopt any other explanation. It is impossible to show that any portion of this water has been formed as the result of oxidation, or by the direct combination of oxygen and hydrogen. It is well known that there are diseases—diabetes and polydipsia—in which the patients discharge enormous quantities of urine. In these cases the urine appears to be more considerable in quantity than the water ingested. Nasse undertook to determine, by a careful series of observations, whether the water taken in as drink, and contained in the solid food, would account for that eliminated by the different excretions. It appeared to him that the excretions, sometimes, separated more water than had been ingested; but he was convinced that, in these cases, the patients had misled him with regard to the nature of their regimen. Whenever this cause of error was carefully examined, he found that the quantity of water expelled was about equal to that ingested. Even in these cases, then, we have no proof of the physiological phenomenon of the formation of water in the organism—a phenomenon admitted by all the chemists. We cannot deny this result of oxidation; neither can we accept it as demonstrated, until proof shall have been furnished."²

After citing the experiments of Marchand to show that carbonic acid is not produced in the body by a direct process of oxidation, but in some other and more indirect mode, Dr. Dalton says this gas

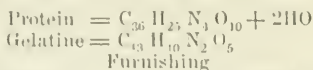
"Originates, in all probability, by a decomposition of the organic ingredients of the tissues, resulting in the production of carbonic acid on the one hand, and of various other substances on the other, with which we are not yet fully acquainted; in very much the same manner as the decomposition of sugar during fermentation gives rise to alcohol on the one hand and to carbonic acid on the other. * * * * The introduction of oxygen and the exhalation of carbonic acid have no direct connection with each other, but are only the beginning and the end of a long series of continuous changes, in which all the tissues of the body successively take a part. Their relation is precisely that which exists between the food introduced through the stomach and of oxygen which is introduced through the lungs. The disintegration and decomposition of the tissues give rise, on the one hand, to urea, uric acid, &c., which are discharged with the urine, and on the other hand to carbonic acid, which is exhaled from the lungs. But the oxygen is not directly converted into carbonic acid, any more than the food is directly converted into urea and the urates."³

¹ Cours Élémentaire de Chimie, ii. 868.

² Leçons sur les propriétés physiologiques et les altérations pathologiques des Liquides de l'Organisme, i. 441-443.

³ Human Physiology, pp. 231 and 245.

Some idea of the retrogressive steps in the great process of tissue-metamorphosis, may be obtained from the following table, in which are enumerated some of the nitrogenized and non-nitrogenized secondary organic compounds, with the chemical formulæ expressing their composition; these formulæ, for readier comparison, being given without their basic water.



<i>Azotized substances.</i>	<i>Non-azotized substances.</i>
Kreatin . . . $\text{C}_8 \text{H}_{11} \text{N}_3 \text{O}_6$	Inosite (muscle-sugar) $\text{C}_{12} \text{H}_{12} \text{O}_{12}$
Kreatinin . . . $\text{C}_8 \text{H}_9 \text{N}_3 \text{O}_5$	Butyric acid . . . $\text{C}_4 \text{H}_7 \text{O}_3$
Inosinic acid . . . $\text{C}_{10} \text{H}_6 \text{N}_3 \text{O}_{10}$	Lactic acid . . . $\text{C}_6 \text{H}_5 \text{O}_5$
Sarcosin . . . $\text{C}_6 \text{H}_7 \text{N} \text{O}_4$	Acetic acid . . . $\text{C}_4 \text{H}_3 \text{O}_3$
Glycin . . . $\text{C}_2 \text{H}_3 \text{N} \text{O}_2$	Oxalic acid . . . $\text{C}_2 \text{O}_3$
Hippuric acid . . . $\text{C}_{18} \text{H}_9 \text{N} \text{O}_6$	Carbonic acid . . . $\text{C} \text{O}_2$
Uric acid . . . $\text{C}_{10} \text{H}_4 \text{N}_4 \text{O}_6$	Water HO
Urea $\text{C}_2 \text{H}_4 \text{N}_2 \text{O}_2$	
Urea 1 eq. ($\text{C}_2 \text{H}_4 \text{N}_2 \text{O}_2$) + 2 eqs. water ($\text{H}_2 \text{O}$) = 2 eqs. of carbonate of ammonia ($2\text{NH}_3 + 2\text{CO}_2$).	

The origin of the saline matters which enter into the composition of the daily waste is shrouded in great obscurity. The source of the urea, whether it is formed originally in the blood, or in the tissues, and then transferred to the blood, is not satisfactorily known. The prevalent chemico-physiological theory, as is well known, ascribes the origin of the urea to the surplus nitrogenous food, to the disintegration of muscular tissue during active exercise, and to the waste of those contractile tissues which—like the heart, the diaphragm and the unstriped fibres of the vessels, the bowels and the integuments—are kept in incessant action by the demands of organic life. Dr. Brinton adopts this theory, and thinks that, in respect to the process by which urea is constructed out of the various tissues, there seems little reason to doubt the general accuracy of the modern doctrine, that one or more of the intermediate stages of this metamorphosis are represented by the uric acid, kreatin, kreatinin, and other azotized alkaloids discovered by Liebig. In support of this doctrine, however, he brings forward no new facts.

With regard to the salts of the egesta, all that we know is thus briefly summed up by our author:—

“That, on the whole, those which are most largely present in the blood and the tissues, are also most largely and constantly cast out from them and from the body—as are the chloride of sodium and the phosphates; that the salts formed by various vegetable acids are converted into carbonates prior to their expulsion; that an addition to the food of large quantities of the salts ordinarily voided provokes a larger expulsion of those thus added; that these saline egesta vary (as the phosphates in delirium and some brain diseases, the chloride of sodium in pneumonia) and remain uniform (as the sulphates during starvation), in circumstances for which we have no very complete explanations; these, the chief facts as yet established respecting them, throw little light upon the nature and quantity of the various saline ingredients required for the food of a healthy person.”

To counteract the injurious effects of this incessant waste, the varied representatives of which have just been mentioned, food is required; and food is defined by Dr. Brinton to be all those substances which enter the alimentary canal from without the body, to be submitted to the digestive function. Looking at the subject in a broad and general manner, the constituents of

man's daily food may be said to be protein, certain hydro-carbons and hydrates of carbon, saline matters, and water. In milk—which, at one period of its life, constitutes the sole diet of the human being—these ingredients are all contained. The protein compound is here represented by the casein, the hydro-carbon by the butter or oil, the hydrate of carbon by the sugar, the salts by the chlorides, phosphates, and alkaline carbonates, the whole being dissolved or suspended in the water.

Protein, whether derived from albumen, fibrin, or casein, is perhaps the most important constituent of food. It is highly nitrogenized, as its formula ($C_{54.7} + H_{6.8} + N_{14.2} + O_{24.3} = 100$) shows, and in this respect closely resembles the solids of the organism. It enters abundantly into the composition of the blood, the plastic lymph, the muscles, and the neurine composing both the central and peripheric parts of the nervous system. There are reasons for regarding it as the source of the gelatinous tissues; while, in the foetus, it is essential to the development and growth, as well as to the maintenance of the animal. It is, in short, as our author justly observes, "the chief substantive agent of the chemistry of life."

It is very difficult to arrive at any satisfactory estimate of the quantity of protein required for the daily maintenance of the healthy adult. Such an estimate can be obtained only by indirect and approximate calculations as to the rate of daily waste in the albuminous tissues, on the one hand, and the degree of digestibility of the proteinaceous food consumed, on the other. From the researches of Frerichs, Schwann, Bidder and Schmidt, Boussingault, Valentin, and others, it would appear that the normal diurnal waste of the albuminous compounds of the adult amount to about $\frac{1}{1350}$ th part of the weight of the body, or a little more than $1\frac{2}{3}$ ounces. To replace this amount of nitrogenous material, however, a much larger quantity of albuminous food is required. The daily rations of the British soldier, in home service, contain a little more than five ounces of albuminous material, in the form of 1 pound of bread and $\frac{3}{4}$ pound of meat. The daily ration in the Army of the United States is $1\frac{3}{4}$ pound of beef, $1\frac{3}{8}$ pound of bread, $1\frac{1}{4}$ ounce of sugar, $\frac{2}{3}$ ounce of coffee, and $\frac{8}{100}$ quart of beans. The new-born infant, weighing six or seven pounds, consumes daily about ten or twelve ounces of milk, containing $3\frac{1}{2}$ per cent. of casein, a quantity of protein amounting to $\frac{1}{270}$ th part of its total weight. From these statements, it is evident that the nitrogenous constituent of any food must always greatly exceed that quantity which is required for the immediate repair of the organism. Much of the casein contained in the milk taken by the nursing infant, frequently passes through the alimentary canal without being absorbed into the blood. And with regard to many other varieties of food, the insoluble state of the protein-compounds actually present, afford a still greater obstacle to their absorption.

The hydro-carbons, or fats, whether derived from the vegetable or animal worlds, constitute another and an important group of aliments. Their importance is very evident from the fact that they form about a fourth or fifth of the body by weight. Of the blood, $\frac{1}{600}$ th part consists of fatty matters. As this quantity is a little more than $\frac{1}{800}$ th or $\frac{1}{900}$ th part of the fat entering into the composition of the nervous system and stored up in the adipose cells in various parts of the body, it follows that the quantity of fat in a state of emulsion supplied to the blood by the lacteals in a given time must be small, and that it is either rapidly transformed in the blood or eliminated from it.

Next in importance to the hydro-carbons, chiefly derived from the fat of

animal food, are the hydrates of carbon, represented especially by the starch and sugar of the vegetable kingdom. The ultimate disposition in the economy of the substances composing these two alimentary groups, the changes they undergo, and the purposes fulfilled by them, though questions of the deepest physiological importance, have as yet failed to be elucidated by the laborious and conscientious efforts of the organic chemist. We know that they are less histogenetic and hamagenetic, so to speak, than the proteinous compounds; and that, when introduced into the body, they do not reappear in the secretions, but undergo an apparently complicated process of decomposition, of the various steps of which we know almost nothing, and which results in the formation of other substances having essentially different characteristics.

The importance of the *water* of the food is such, according to Dr. Brinton, as justly to entitle it to the rank of a fourth alimentary constituent. In view of its chemico-physiological rôle in the economy, we are inclined, on the contrary, to consider water as the *most* important substance to be supplied with constancy and regularity. The universality of its presence in the solids and fluids of the body, the fact of its forming about four-fifths of the entire corporeal mass, the manner in which it facilitates the actions of the different organs, the influence it exerts both over the physical and vital properties of the tissues, and the essential part it plays in the wonderful acts of nutrition, excretion, and excretion, all sustain this opinion. It is well known, moreover, that the body suffers much more quickly when completely deprived of water than when the supply of solid food is withheld. Magendie, long ago, found that dogs furnished with water alone, lived from six to ten days longer than others deprived of both solid and liquid food.¹ The more recent researches of Bidder and Schmidt also show that, even after the withdrawal of all other ingesta, the copious use of water gives to the starving animal a longer duration of life.² The daily quantity of water required by the adult is, on the average, about 75 or 80 per cent. (or about 5 pounds) of the mixed fluid and solid food (about 6.5 pounds) which he consumes in twenty-four hours.

Another, and the last, alimentary group consists of certain inorganic matters of which the chlorides and phosphates of the alkalies, together with lime and iron, are the most important. These saline matters, when introduced into the body, undergo, for the most part, but little, if any, change. They find their way into the blood, are deposited in the tissues, and taken up and discharged again by the excretions, under their own form. Some few of them, as the malates, tartrates, citrates, &c., of the alkalies are decomposed and transformed into carbonates; small portions of the chloride of sodium and phosphate of potassa undergo a double decomposition, producing, thereby, chloride of potassium and phosphate of soda; some of the phosphate of soda, also, is transformed into biphosphate by the union of a part of its base with uric acid. It is probable, according to our author, that the sulphates are occasionally decomposed in the alimentary canal; their sulphuric acid being deoxidized into sulphuretted hydrogen, while their bases unite with the carbonic acid formed in the system.

In the general classification of alimentary constituents thus briefly passed in review, we find a clue to the composition of the principal varieties of food. For each of these constituents is represented in the different animal and

¹ Comptes Rendus, t. xiii. p. 256.

² Die Verdauungssäfte und der Stoffwechsel, Leipzig, 1852, S. 344.

vegetable substances consumed by man, and a mixture of these two kinds of organic matter, as our author justly observes, must unquestionably be regarded as the natural food of man.

In reference to the dietetic importance of any aliment, and the comparative value of animal and vegetable food, Dr. Brinton thus writes :—

“The influence of any special kind of food on the organism depends, not only upon its chemical, but also its physical properties; in other words, not merely on its various constituents, as capable of being shown by chemical analysis, but also on their mechanical arrangement and admixture. And it must be borne in mind that the original properties of food in both these respects are capable of being greatly modified by the operations of cookery.

“Contrasting the general characters of animal and vegetable food in these two respects, we must, on the whole, assign to the former the highest rank in the scale of dietetic value. For the tissues of one animal necessarily contain most, if not all, of those organic and inorganic substances which are required for the maintenance or construction of another; and that, too, in something like the fitting proportion of their respective ingredients. As a rule, they are also devoid of downright poisonous constituents. Besides these, they offer the equally important advantages of possessing such a structure, arrangement, and solubility as materially aid their entry into the organism. Hence they are not only much more nutritious than an equal quantity of vegetable food, and cover more completely all the details of the bodily waste, but they are also digested and assimilated with far greater ease and rapidity. It is for these reasons that the use of animal food is so much to be preferred in circumstances in which it is desirable speedily to avert any threatened exhaustion of the bodily powers.

“Against these advantages possessed by animal food we must, however, set off certain disadvantages. It contains some substances which, like the gelatinous and horny epithelial tissues, seem to be of comparatively little value for the purposes of ordinary nutrition. It doubtless includes others which are so far noxious as to require speedy excretion; as is the case with urea, and with those secondary organic compounds out of which this deleterious principle is immediately constructed. Besides, it is generally to be regarded as deficient in those non-azotized elements which are indirectly so important to the maintenance of the due combustion and heat of the body. For the mere quantity of fatty matter which it includes rarely suffices to make these hydro-carbons a proper substitute for the large starchy and sugary constituents of vegetable food; and its quality still further reduces (under all ordinary circumstances) the efficiency of this substitution. Hence for civilized man, in temperate climates, we may safely assert that no excess of proteinous or adipose tissues in the food can fully compensate the absence of the various hydrates of carbon.

“And while the main advantage of vegetable food lies in this large ingredient of hydrates of carbon, its disadvantages are equally obvious. It generally contains but a small proportion of the protein compounds. Even this limited quantity, again, is often virtually diminished by their insoluble state; or by the indigestible form which is implied by their mechanical arrangement in the vegetable tissues. Many of its starchy constituents are also rendered useless in the same way: being inclosed in hard or tough insoluble envelopes, which effectually shield them from the digestive process; or having a composition which requires to be altered by a chemical process of metamorphosis before they can be fitted for absorption. It is true that some of these disadvantages may be, in great extent, obviated by the ingestion of a larger quantity of such food, as well as by a more protracted sojourn in the alimentary canal. But there is often a still more serious defect in its inorganic constituents; which, in various kinds of vegetable food, appear quite insufficient to replace the salts lost by the waste of the organism. Thus the ash of some esculent vegetables is peculiarly deficient in phosphates; that of others, in the equally important ingredients of soda and chlorides. Lastly, the poisons contained in many plants constitute another objection to vegetable diet: an objection which is, however, generally obviated by the instinct of animals, the experience of man, or the purification which the process of cooking often affords.”

Having thus, in a general manner, contrasted together animal and vegetable food, Dr. Brinton next enters into a careful consideration of the chemical character, digestibility and nutritional value of syntonin, albumen, gelatin, fat and other components of the different kinds of meat or flesh ordinarily so called. He also comments very judiciously upon the dietetic value of fish, blood, brains, glands, bone, eggs, milk, cream, butter, cheese, &c. In the course of his remarks upon gelatin, a substance whose chemical position and nutritive value have been the subject of so much controversy, he takes occasion to combat the dominant opinion of the present day that gelatin is entirely devoid of all nourishing qualities. He reminds us that, in its composition, gelatin differs from protein chiefly in its smaller proportions of carbon and hydrogen; that, as regards its origin, it can scarcely have any other source, throughout the whole herbivorous division of animals, than a metamorphosis (probably regressive) of their albuminous tissues; and that, as shown by the experiments of the committees appointed by the French Academy, and the Institute at Amsterdam, gelatin is at first eaten eagerly, and for a time defers starvation. The discovery of digested gelatin in the urine, after its injection into the veins, though brought forward as a proof of its innutritious character, he thinks may be contradicted, as a fact, on the one hand, and objected to, as a deduction, on the other. For Frerichs failed to find any such elimination, and Bernard has since asserted that peptone, when injected into the systemic vessels, may be eliminated by the kidneys.

"Again, the statement of Frerichs, that the ingestion of much gelatin raises the proportion of urea in the urine, is one which, true as it undoubtedly is, no way militates against the nutritive properties of this substance; save by arguments which, carried to their legitimate conclusions, would allege the same proposition respecting albumen, the large ingestion of which is followed by a like result. There is nothing to render it impossible that part of the gelatin thus ingested is assimilated, and that the surplus only is decomposed in the blood or the nutritional fluid, to be afterwards eliminated in this form. Boussingault¹ does, indeed, distinctly find such a partial disappearance of the gelatin of ingestion from the excretions, as can only be accounted for by supposing it really applied to the enriching of the fluids, if not to the construction of the solids, of the organism."

The question of the efficacy or inefficacy of gelatin as an aliment is different from that of the tissues from which it is derived. Gelatin is an educt rather than a product, and is but a feeble and inefficient representative of the collagenic structures. These structures, according to our author, dissolve rapidly and completely in the gastric juice, and are transformed into liquids quite undistinguishable from true peptone. Cubes of solid tendon and yellow ligament, and parings of articular cartilage thus dissolve in large proportions in a natural or artificial gastric juice, and are converted into limpid, transparent solutions, which fail to exhibit the characteristic reactions of either gelatin or chondrin. In his experiments on artificial digestion, Dr. Brinton found that the chondrogenic mass (as in the elastic *ligamentum nuchæ* of the ox) dissolves more slowly, and in smaller quantity than the collagenic tissues; which are easily taken up in three or four hours, at a heat of 103° F., and in four times their weight of artificial gastric juice. The gelatinous tissues are not altogether wanting in the alimentary virtues of the protein compounds. Dogs and other carnivora have been nourished for a long time, with but little diminution of weight, or detriment

¹ Comptes Rendus, September, 1846.

to health, by means of tendon, ligament, bone, cartilage, and white and yellow fibre. Such are the principal facts brought forward by Dr. Brinton, in support of the opinion that gelatin is capable of undergoing a true assimilation, and that the tissues yielding gelatin differ from the richest and best meats, only in being digested with more slowness and difficulty, and assimilated at a corresponding disadvantage.

Our limits will not permit us to follow our author in his interesting account of the various kinds of animal food, nor can we bestow more than a passing glance at the contents of the 8th chapter, in which the varieties of vegetable food are considered in a general but clear and instructive manner. In this chapter Dr. Brinton dwells upon the importance of vegetable food in relation to national life, its value in warm climates, and the manner in which it is influenced by culture, soil, climate, age, &c. He also describes the various cereal and allied grains; comments upon their relative chemical and nutritive values, and explains, at some length, the process of bread-making. He thinks that Dr. Dauglish's method of making bread by forcing into the dough a quantity of free carbonic acid under a heavy pressure is superior to all others, since the bread thus made loses none of its starch, dextrin, or sugar, as in ordinary fermentation; and, moreover, appears to keep better. Dr. Brinton also notices, in this part of his work, the chemical composition and nutritive properties of various roots, fruits, green herbs, esculent fungi, &c. His remarks upon the potato are so just, not only in a physiological, but also in a politico-economical point of view, that we do not hesitate to transfer them to our pages. They are all the more interesting, too, in view of recent information from abroad by which we learn that, notwithstanding the horrors of starvation endured by the Irish people, they have not yet lost confidence in their favourite article of food, and are, therefore, to be again exposed to famine, in consequence of the failure of the potato crop in many counties of Ireland.

"Perhaps there is no article of food which more strongly claims the attention of the educated public, than does the potato. Certainly there is none which better illustrates the intimate causal relation between the food and the habits, the physical and the moral state of nations. Introduced into Europe from America, by Hawkins, two hundred and fifty years ago, it is only during the last one hundred years that its cultivation has assumed such enormous dimensions, as to subvert the dietetic habits of whole nations, and to accomplish a silent revolution, from which only the last few years have promised any efficient reaction. Throughout many parts of Europe, the poorer classes have now, for years past, been relying for their nutrition chiefly on the potato. And though the sturdy English sagacity of Cobbett long ago pointed out the danger of this procedure, as well as the insufficiency of this vegetable to replace those more nourishing articles of food which, in the shape of corn, &c., had been vouched by the experience of thousands of years; though, indeed, both here and abroad, his presagings could be traced in course of fulfilment, it was not until the terrible climax of the Irish famine, that the British nation became aroused to the recognition of those more casual, but not less dangerous, effects which spring from trusting to the potato as a staple of food.

"The immediate advantages of its cultivation were obvious and undeniable. With little toil or trouble, the potato extracted from the ground an amount of nourishment far surpassing that which could be obtained by the growth of wheat or any other grain. Frerichs estimates that the same surface of land would yield in potatoes twice as much protein, and four times as much starch and mineral ingredients, as if sown with wheat. Hence the cultivation of the potato over large tracts of country first gave a cheap and plentiful food; and then permitted an increase of population, up to the full limits of that extended capacity of nourishment thus acquired by a given space. This was especially

the case wherever the tenure of land implied, either its subdivision among a number of small proprietors, or (worse still) its subletting through various agents from the landlord to the cottier tenant at a rack-rent. A simple process of digging, planting, waiting and eating, replaced the perpetual foresight and labour of legitimate husbandry. And its natural results gradually attained their climax in Ireland; where might be seen a population distinguished, abroad, for undaunted industry and self-denial; but, at home, bereft of the best occupation of life, and the strongest incentives to exertion; and living in numbers unduly multiplied, upon a plant, not only precarious, but (as we can now see after the event) sure to be ultimately weakened or destroyed by the exhaustion of some of its ingredients from a continually impoverished soil.

"The above sketch of the composition of this vegetable sufficiently entitles the physiologist to range himself with the political economist, in determined opposition to the use of this vegetable by any population as their principal article of food. We may dismiss from further notice all consideration of that social and moral degradation which, ever since its introduction, have been steadily following such an undue use of the potato as the staple aliment in various parts of Europe. We may even set aside those fearful outbreaks of pestilence in Ireland which, though produced by the quantitative failure of one crop, must surely have been in some degree fostered by a peculiar state of the constitution—by a mental and physical degeneration—itself probably founded, in part, on the qualitative deficiencies of the previous food. Our objections to the potato find a better excuse in such a composition as the above. Rough as is the above estimate, it nevertheless claims to be based upon analyses of unusual number and accuracy. It shows that the food to which it refers is wanting in some of the most important saline constituents of the body: such as the phosphates,¹ sulphates, and chlorides, which are hourly leaving the organism in comparatively large quantity. And that, in addition to this grave fault, it contains so small a proportion of protein, that we may calculate about thirteen pounds of potatoes as the quantity which a man ought daily to consume, in order to replace the waste of his body by a sufficient supply of histogenic constituents in his food. At least this would be the amount of potatoes corresponding to the protein which experience shows to be enough, and not too much, for the daily ration of a soldier; that is, for the food of an adult male, in good health, and habituated to moderate, but not excessive, bodily labour. Lastly, it need hardly be added, that the form and arrangement of the protein contained in the potato are such as would scarcely ever allow it to be as well digested as the protein contained in the bread and meat of the soldier's ration. Hence its less suitable quality would require to be compensated by a still further increase of quantity. While it is altogether devoid of fat."

In the short chapter on condiments we find some interesting remarks upon the relations of these substances to food and medicine, and their influence upon the appetite, circulation, secretion, &c.

The chapters on tea and coffee and alcoholic drinks are well written, and very suggestive in both a dietetic and physiological point of view.

In these chapters Dr. Brinton takes occasion to oppose the well-known views of Boecker and others in regard to the physiological action of tea, coffee, and alcohol. He denies that they are waste-retarders (*Mauserhemmende*, or moulting-impeders), as Boecker calls them; and asserts that if we confront such an interpretation of the facts observed with the higher laws, and more exact and numerous facts of physiology, we shall find reasons for regarding such a view as erroneous. To impart vigour to the vital functions by checking metamorphosis is in flat contradiction, he thinks, to all that we know of life, for the diminution of healthy waste, is a modification which, in our own bodies, would be associated with a lowering of

¹ It may be estimated that a given weight of potatoes contain scarcely one-tenth of the phosphate of magnesia present in the same quantity of wheat.

health and activity; and which, as effected by nature (so to speak) in descending the animal scale, seems always to be brought about, says our author, at the expense of the total of life; in other words, of the quality or quantity of the collective vital functions. He appeals to the observations of Benedek,¹ as strongly confirmatory of his view, as exemplified by the urine.

Dr. Brinton's observations on the physiological action of alcoholic drinks, their influence on digestion and on health in general, are among the most valuable in the work under consideration. His opinions upon this subject are very different from the received doctrine of the schools, and are worthy of careful consideration.

His elaborate description of the process of digestion will also amply repay a careful perusal. The work, as a whole, indeed, recommends itself to the favourable notice of the physiologist and the practical physician. We have dwelt upon it at some length on account of its intrinsic merits and the importance of the subject upon which it treats. For of all the physical agents which influence the welfare of man, both in his individual capacity and social relations, food is, perhaps, the most active and general, inasmuch as it controls, very materially, the increase of population and the distribution of wealth, and consequently also the distribution of political power and social influence.

J. A. M.

ART. XIII.—*The History of Medicine; Comprising a Narrative of its Progress from the Earliest Ages to the Present Time, and of the Delusions incidental to its advance from Empiricism to the dignity of a Science.* By EDWARD MERYON, M. D., F. G. S., Fellow of the Royal College of Physicians of England, late Lecturer on Comparative Anatomy at St. Thomas's Hospital, &c. &c. Volume I. London, 1861. 8vo. pp. 483.

SINCE the time of Freind, medical history has been written in almost as many different modes as general or national history. Prominent as typical works have been the *Historical Dictionary* of Eloy, the elaborate treatise of Sprengel, the concise epitome of Bostock and Alison, the philosophical disquisition of Auber, and the analytical and philosophical history of Rénouard. Dr. Meryon has commenced his work with the view of combining the narrative of facts in medical discovery with that of the progress of medical theory, and also of the prevailing delusions of different periods; so as to give a comprehensive survey of "the past history, the present state, and the future prospects of the medical profession." That such a work, giving a clear and complete history of the development of human knowledge in biology, pathology, hygiene, and therapeutics, and uniting thoroughness of research with lucidity of expression, would be a most valuable contribution to medical literature, is evident. It is not so certain, however, judging by his first volume, that Dr. Meryon is entirely qualified to attain the high standard thus set forth.

Yet, although the hope inspired by the programme announced in his

¹ *Annalen der Chemie und Pharmacie*, Bd. lxxvii.

introduction meets with some disappointment in the perusal of the volume, if it were read without reference to any critical ideal, none could fail to find it a very interesting book. Dr. Meryon's style is easy and mostly agreeable. Only now and then we meet with lapses in diction which indicate an unequal degree of solicitude in the composition and correction of the work. As to narrative, a similar remark may be made. Generally accurate in statement, and sufficiently full in reference to authorities, unaccountable oversights occur in a few instances, and decided inequality exists in the completeness with which apparently equivalent topics are treated.

A serious defect in the book, considered as a manual for the study of the physician, or even for the instruction and entertainment of the general reader, is its manner of arrangement. Perhaps it should rather be said the *absence* of systematic arrangement. A chronological order of succession is generally observed, it is true. But the history of medical and pseudo-medical philosophies, of discoveries and diseases, is so intermingled through the volume as to produce a feeling of entanglement. Thus, early in the sixth chapter, we are brought into the company of Raymond Lully, Peter Woulfe, and even Lavoisier; while in the middle of the eighth occurs a discussion of the anatomical knowledge of Hippocrates, Aristotle, Erasistratus, and Herophilus. Linaere and Caius commence, with equal formality, the eighth and twelfth chapters. The whole of the ninth chapter is occupied with Paracelsus and Paré; while more than twenty pages of the tenth are filled with an account of popular delusions of the sixteenth century, having no direct relationship to medicine. Doubtless these furnish agreeable reading; but their space cannot very well be spared in a volume which, in less than 500 pages, brings us to the close of the sixteenth century.

Lesser errors it is, of course, an ungrateful task to point out; but some are too striking to be overlooked. Thus, three times on the same page (p. 54), Dr. Meryon ascribes to Plato the assertion that the Romans excluded physicians from their city for the first six hundred years of their history; a declaration which could only have been made, whether true or false, some two centuries after Plato's death. At the end of the same chapter he shows (p. 62), what would otherwise be obvious, that it was Pliny and Cato who were running in his mind, and thus induced the *lapsus pennæ*. With similar carelessness he has, four times in one chapter, and twice on one page (p. 211), written Herder for Hecker, the historian of epidemics of the middle ages.

Dr. Meryon's considerable list of *errata* might have been extended by the correction of a few grammatical oversights, such as "the tone of quiet sarcasm * * * impress," &c. (p. 185); "the precise data * * * is wanting" (p. 304); "the nature of which were in some degree understood," &c. (p. 428). Inelegance, at least, must be predicated of such phrases as "patience and perseverance pushed on to genius;" "an extraordinary memory, whereby he acquired an encyclopædic intellect;" "an indubious foundation;" or, worse, "irresistible foundation of medical science." Can any one discover the meaning of the following sentence?

"The exploded theories, however, are both interesting and useful; for the same form of reasoning is so deeply rooted in us as it is in all men who have to deal with phenomena in which artificial experiments have a very limited range, that we may set forth its insufficiency for the expression of a sentiment as well as for the exhibition of the practically mischievous tendency of such reasoning, unless there be a clear perception of the object to be aimed at, and a systematic means used in the right direction for its attainment."—P. 330.

Leaving these, however, which might be the nuds even of "bonus Homerus," the more essential qualities of the book remain to be considered. We have to express the opinion that Dr. Meryon's reading has been more extensive than discriminating. He appears to us to lack philosophic judgment. Not wishing to assert this too dogmatically, it will probably be more profitable for us to bring into question a few of his statements and opinions than it would be to attempt an analysis or abstract of the contents of the whole volume.

Upon the subject of the origin and infancy of medicine, Dr. Meryon is not alone in passing lightly over the claims of the Egyptians. Yet, as Homer shows in the *Odyssey*, their priest-physicians had not only an early but a great reputation. Herodotus says that many foreigners resorted to Egypt for drugs as well as for wines, and that both Cyrus and Darius sent thither for medical men. Whether the Hermetic books were really of great antiquity or not, there seems to be little or no doubt that Athothes, the second King of Egypt, wrote on Anatomy. Esculapius, if a real personage at all, was probably Phœnician or Egyptian.¹ The Egyptians were, also, the earliest apothecaries. Chevalier Bunsen is authority for the derivation of the word Chemistry² from Khemi, the land of Kham or Ham. The *balance*, the introduction of which is ascribed by Dr. Meryon in one part of his book to Lavoisier, and in another to Van Helmont, was well known to the Egyptians, as may be seen by the paintings upon the walls of their ancient tombs; and in metallurgy and colour-making they were certainly adepts. More remarkably, some of the signs used by physicians now in writing prescriptions (especially Θ and Ξ), bear considerable resemblance to Hieratic Egyptian numerals;³ having probably been transmitted through the Arabians.

Grecian medicine is introduced by Dr. Meryon with a "cursory sketch" of the philosophic systems, and their influence upon medical opinion and progress. Platonism is especially depreciated. In a later part of the volume (p. 224) it is said, that "by its characteristic doctrine of ideas, independent of the objects which those ideas represent, it contributed less to improve than to corrupt the human understanding." Even in a work which only incidentally touches upon philosophy, this appears to be a harsh manner of disposing of him who has been called "the high priest of reason." The *Timæus*, which is quoted by Dr. Meryon, was almost certainly not meant by Plato as a final or perfect physical system, but as only hypothetical and provisional.⁴ It was, in fact, "a physical romance with a mighty moral." Aristotle, although much more of a naturalist than Plato, was also a teleologist; and by his dogma that the right course of observation and investigation proceeds from the whole or universal to the particular or individual, he did more to retard the advance of science beyond his own acquisitions than did Plato with all his ideology and dialectics.

Dr. Meryon seems to us no more happy in his allusion to Socrates (p. 58) as having "introduced the first stage of that sensual philosophy, which acquired the data for its perfect development in the seventeenth century by

¹ Le Clerc, *Hist. De La Médecine*, p. 22.

² Ascribed by others, with less probability, to $\chi\upsilon\mu\omicron\varsigma$, juice.

³ See Champollion's *Grammar*, pp. 213 and 220.

⁴ Plato disclaimed the responsibility of the opinions in *Timæus*, by speaking not through Socrates, the usual exponent of his own views, but through a stranger and Pythagorean. *Lect. on Hist. of Ancient Philosophy*, by W. Archer Butler, vol. ii. p. 186.

the combined efforts of Bacon and Locke." At least, a learned authority¹ has directly *contrasted* Socrates and Bacon, in that "Bacon conducted science into the world of matter, while Socrates led her into the heart and actions of man."

In summing up, at a later period, the results of the labours of the two ancient sects of dogmatists and empiricists, our author decides that the balance is greatly in favour of the former; most of the successive discoveries of facts which advanced medical science, down to the time of Paulus Ægineta, having been associated with the names of the dogmatists and their allies.

We perceive with pleasure that Dr. Meryon makes frequent reference, in different parts of his book, to the excellent Discourse on the Medical Profession of Ancient Times, of Dr. Watson, of New York, and to the History of Epidemics, of Noah Webster, LL. D.; a pleasure not lessened by the fact, that such reference to transatlantic authorship is apt to be rare and reluctant among British writers upon medical and general science.

In his chapter on "the Healing Art as it existed in Ancient Rome" (chap. iii), our author, following Drelincourt, denies the truth of Pliny's assertion, that physicians were excluded from Rome for six hundred years. The most positive evidence upon this point is quoted by Le Clerc, from Dionysius of Halicarnassus, who states that in the plague of CCI A. U. C., "the *physicians did not suffice* for the number of the sick." This was more than two centuries before the time of Archagathus, who was said by Pliny to have introduced the profession of medicine into Rome. That the art remained in its lowest state, however, and miserably cumbered by the grossest superstitions, until the time of the Cæsars, there appears to be no doubt. The medical science of Rome was essentially Greek in origin.

However absurd may seem Cato's reason for denouncing the Greek physicians, that he suspected them of a design to poison all barbarians (including Romans), the expulsion of the Greeks from Italy, at a later period, must certainly have included the medical practitioners. Dr. Meryon does not discuss this question, but implies a negative. Sprengel does not settle it. Evidently, however, Pliny² distinctly mentions their expulsion, although his language has been held to bear a different interpretation.

We cannot pass by Dr. Meryon's quite unnecessary ascription, in his 4th chapter (pp. 67 and 70), of an unfavourable influence upon medicine to the *introduction* of Christianity. If anything less than this, apart from the monkish *corruptions* of the dark ages, is meant, his language upon that topic is not well chosen. His account of Celsus, Galen, Oribasius, Alexander Trallianus, and other celebrities of the early Christian centuries, is sufficiently full and interesting.

At the opening of the chapter upon the Saracenic school of medicine (chap. v.), Dr. Meryon adopts the current tradition, of the destruction of the Alexandrian Library by the command of the caliph Omar; modified by the statement (on the authority of Portal and Amoreux), that its medical books were designedly saved from the flames. A reviewer of Dr. Meryon's book³ insists that the whole legend has been disproved. We do

¹ W. Archer Butler, op. citat., vol. i. p. 353.

² Hist. Nat. xxix, c. 8, the passage is "et cum Græcos Italiâ pellerent, diu post Catonem, excepiſſe medicos." Some consider "excepiſſe" to indicate the *exemption* of physicians from banishment; but the context very clearly shows that Pliny meant that they were specially *marked* or *selected* for expulsion.

³ Brit. and For. Medico-Chirurg. Rev., Oct. 1861.

not find this, however, to be admitted by so careful a writer as Wilkinson, who considers the tradition to be sufficiently sustained by evidence given by Makrizi, Abdal-latif, and other Arabian authors, cited by De Sacy. We are obliged to differ from Dr. Meryon upon so many points, that it is agreeable to find him right whenever it is possible.

His estimate of the merit of the Arabians does not satisfy us, however, more fully than did that of their predecessors the Egyptians. After giving to them, wrongfully, the credit of the origination of chemistry (p. 123), he attributes all the celebrity of the Arabians to "the ignorant and superstitious condition of Europe from the seventh to the twelfth or thirteenth century, and not to any original and independent literature." Although what literature they had was mostly derived from the Greeks, yet their chemical proficiency must have been considerable, and their contributions to the *materia medica* and pharmacy of the profession more than respectable, for their age. It should be looked upon as a matter of course, and as no ground of reproach, that "their random manipulations were very different things from the systematic experiments of the present day" (p. 143). It is certainly a significant fact, that our language retains to the present time so many chemical and pharmaceutical terms of undoubted Arabian origin; as *alkali*, *alcohol*, *julep*, *elixir*, *syrup*, *sugar*, *naphtha*, *camphor*, *amber*, *bezoar*, *gum arabic*, *alembic*, *mattress*, *jar*.¹ Bostock² admits that the Saracens introduced into Europe, rhubarb, tamarinds, cassia, manna, senna, camphor, various gums, resins and aromatics. Gmelin (as quoted by our author) gives them the honour of having forestalled Paracelsus in the administration of corrosive sublimate as a medicine. If we add to this, that they were the first to give any consistent account of smallpox and measles,³ their claim to the respect of the reader of medical history would seem to be made out; and their empire of 800 years can hardly with propriety be termed "unfruitful."

A similar depreciation of the value of the incidental results of the labours of the alchemists occurs in Dr. Meryon's next chapter (chap. vi.). His language on this subject is simply contradictory; asserting that, by their researches "the progress of chemical science was in no degree advanced" (p. 158), although he had previously mentioned their "discovery of many most important chemical compounds, as well as of many most valuable medicinal agents;" and afterwards speaks of the debt due to alchemy "for the familiarity which it engendered with many natural substances, and still more for the *insight which it gave into their composition*." The Italics are ours.

The history of the school of Salerno, in which, in the eleventh century, the first medical diploma was conferred, is instructively narrated in the same chapter. Among other interesting facts, it is stated that Sybil, wife of Robert, Duke of Normandy, saved his life against his consent, by sucking, during his sleep, a wound inflicted by a poisoned arrow. Nor was Sybil the only lady practitioner of Salerno; at which females were admitted as students of medicine. Hæser records the names of five who were distinguished; Constantia Calenda being the most celebrated of them all. In the same century, the Abbess Hildegarde, of Rupertsberg, attained a like reputation. A reference to these, as well as to Paula, the friend of St. Jerome, who founded the first hospital for the sick at Rome, has now an

¹ Trench, on English, Past and Present.

² Hist. of Med., p. 112.

³ See Gibbon's History, vol. x. chap. 53.

interest, especially to those who seek to revive in modern schools of medicine the Salernian privilege of the sex. It is not easy to see, however, any argumentative or authoritative force in a precedent, whose duration was so temporary, and whose substantial results, honourable as they were in exceptional cases, were still so few. Rather may we observe in it an illustration of the truism, that men are liable to similar errors and experiments in all ages; as the vendor of patent nostrums may take delight in remembering that Galen paid high prices for secret remedial preparations, and that Alexander of Tralles was, with considerable learning, a good deal of a quack.

Another extraordinary oversight appears to us to have been committed by our author, in speaking of the "impulse" communicated to medicine as well as to other physical sciences by Roger Bacon, as "not a healthy one" (p. 187). But, as the merit of this great philosopher, in anticipating, to a considerable extent, the inductive method of Lord Bacon, needs from us no defence, we may pass to more strictly medical topics.

A number of pages in the 6th chapter (whose subject is the "Progress of Medicine, and its Vicissitudes, from the 7th to the 15th Century") are occupied with an account of destructive diseases of the thirteenth and fourteenth centuries; particularly scurvy and the black death. Chapter vii. has for its title the "Progress of Medicine during the Fifteenth Century." The controversy between the advocates of revulsion and derivation, the sweating sickness, the origin of syphilis, and the tribulations of the barber-chirurgeons, successively occupy the author's attention. We will pause only upon one of these topics; that of the outbreak of syphilis in Europe, near the end of the fifteenth century.

It is certainly a matter of surprise that Dr. Meryon, after considerable reference to authorities, should accept the view, that syphilis was imported from the West Indies by Columbus and his followers. Whether the "*morbis Gallicus vel Neapolitanus*," which affected the army of Charles VIII., at the siege of Naples, in 1495, was really the disease now known as syphilis or not, remains somewhat doubtful. It was at least more violent and dangerous than the primary syphilis of the present day. Von Hutten, A. T. Petronius, and Tomitani¹ assert that it either disappeared or changed its character very much within a few years from the time of its appearance. That this does not disprove its identity with our "*lues venerea*," must be admitted by those only who grant that, as Dr. Fergusson² and others aver, the latter disease is now essentially modified in severity and curability by climatic and other contingencies.

If, however, the identity of the Neapolitan malady with syphilis were assumed, there would still be a manifest deficiency in the historical evidence as to its origin. A decree of the Parliament of Paris, dated 1496,³ is recorded, in which the disease is mentioned as having been prevalent in that city for two years; while the conquest of Naples was not effected until 1495. Fallopius, indeed, is quoted by our author as showing how, naturally, each nation was anxious to thrust the generation of the loathsome contagion upon another: "*Itali Gallicum morbum vocant; Galli seabiem, vel morbum Italicum, vocant; vocant quinetiam Hispanicam seabiem, quoniam affectus ab Hispanis communicatus est Germanis.*" At last,

¹ Dict. of Pract. Surgery, by S. Cooper, N. Y. ed., p. 439.

² On the Diseases of the British Army in Portugal; Med. and Chirurg. Trans., vol. iv. pp. 1, 2.

³ S. Cooper, *op. citat.*, p. 437.

it seems, they all agreed to fasten the odium upon the undefended nations of the newly-discovered West.

This ascription, as a scientific theory, we must agree with Hunter, Sprengel and Cooper, in rejecting. Other hypotheses, of greater or less plausibility, are not wanting. The most absurd has been revived by Ricord, having been proposed by Van Helmont: that syphilis is the result of the transmission of glanders from the horse to the human subject. Much more doubt rests upon the existence or non-existence of a relationship between the ancient leprosy and syphilis. Very many writers have noticed the coincidence between the subsidence of leprosy in Europe, in the fifteenth century, and the appearance and extension of syphilis.¹ *Imprimis*, this does not look like a genetic connection between them. But, the doubt grows out of the imperfection of the record. *What was the ancient leprosy?* This is difficult to determine.

The most considerable prevalence of a disease which has, traditionally, been considered as leprosy, and of which we have a clear recent account, is on the western coast of Norway. Special hospitals there exist for its treatment; and the *spedalsked*, as it is called, may probably be a remnant of the tubercular leprosy of the middle ages, as that may have been of the elephantiasis of Aretæus. *Spedalsked* is on the increase in Norway; the whole number of cases known having been but 659 in 1836, but nearly 2,000 in 1858.² The elaborate investigation of its localities and history has, however, convinced the medical men of that country that its causation is there chiefly connected with the hardships and miseries of the deep sea fisheries in winter. We must look elsewhere for anything like proof of a direct association with syphilis.

A lively discussion upon this subject between Drs. Simon and Lindwurm, of Hamburg, published a year or two since,³ has elicited the conclusions, that impure connection has been by some early writers adduced as a cause of leprosy; that many symptoms of the latter closely resemble secondary or tertiary syphilis; and that both ancient and modern physicians speak of the transition of lues venerea into leprosy. Scherlievo, falcadina, sibbens, yaws, radesyge, &c., are so affiliated. Upon these conclusions as to fact, two directly opposite theories have been founded: the one, that leprosy was constitutional or secondary syphilis; the other, that syphilis is the product of sexual commerce between persons one of whom had leprosy affecting the genital organs. The former is the most inviting hypothesis. It is easy to imagine the protracted non-discovery of the causal connection between a local ulcerative disease and a cutaneous or constitutional disorder supervening sometimes many weeks or months after the cure of the local affection. But, without dilating too long upon this question, the facts may be said to lean more in favour of the causative action of the leprosy affection. The mingling of nationalities during the expedition of the French to Naples, in 1494-'95, aided by very bad morality, may have afforded the opportunity for this extraordinary pathogenesis.

¹ Rénouard says, however, that William De Salicet, in the 13th century, described bubos resulting from impure coition, and that Lanfranc, of the same period, gave a clear account of contagious ulcers of the genitals.—Rén., *Hist. of Med.*, translated by Comegys, p. 344.

² *Spedalsk Disease; its Cause and Means of Prevention*, by D. C. Danielssen, M.D.; cited in *Brit. and For. Med.-Chir. Rev.*, April, 1858. Prof. Virchow, of Berlin, is said to be now engaged upon a work on the History of Leprosy.

³ See *Brit. and For. Med.-Chirur. Rev.*, Jan. 1861.

At the same time, all these reasonings are very speculative. There is quite as much, or more, probability in the view that, as crowd-poison produces typhus, and foul hospital air erysipelas, so filthy promiscuous sexual intercourse may have begotten, and may forever beget, the venereal contagion. The only fact we have met with that seems to conflict with this simple theory is, that, as stated by Dr. Pickering,¹ the Hawaiian Islanders, while they are decidedly the most licentious of the Polynesians, having "really an approach to promiscuous intercourse," yet exhibit "fewer external marks of disease than those of any other group." Loss of the nose, especially, which he had seen often on other islands, the same writer mentions as being scarcely met with there.

The best part of Dr. Meryon's book is his eighth chapter, "on the principal anatomists of the sixteenth century." It opens with a good account of Thomas Linaere, founder of the Royal College of Physicians of London, and of the important influence upon European science exerted by the Humanists, including Linaere, Leoniceus, Koch, Gonthier, and Cornarus, as well as Erasmus, Melancthon and others. After the labours of the first practical or demonstrative anatomists, Mundinus, Zerbi, Achillinus and Bérenger de Carpi have been briefly considered, the progressive discoveries in the anatomy and physiology of the apparatus of the circulation are taken up. Our author assigns the credit of the earliest discovery of valves in the veins to Charles Étienne, of Paris; and in this he does not merely follow the authority of Cruveilhier, but makes reference to the work of Étienne himself, published in 1536. Although the vena portæ is spoken of in this work as having veins, the context shows that the vena hepatica was really meant. The valves of the veins in the extremities, and of the external jugular, having been announced by Sylvius, in 1540, and that of the termination of the vena azygos by Cannanus and Amatus, in 1551, the claim, made by himself and sustained by Harvey, on behalf of Fabricius ab Aquapendente, is allowed to fall to the ground. It is hard for us now to realize the fact that such eminent anatomists as Vesalius, Fallopius and Enstachius should persist in denying the existence of venous valves after their discovery: especially as Vesalius himself did such a signal service to the progress of science, by disproving the ancient theory of the perforation of the wall between the two ventricles of the heart, in the face of the almost sacred authority of Galen; and therefore at the risk of martyrdom.

Servetus, who was a martyr in reality, although not in the cause of science, undoubtedly apprehended the course of the pulmonary circulation; although as a happy conjecture rather than a demonstration. The same is properly said of its "rediscovery" by Realdus Columbus; and of the more striking expressions of Cæsalpinus, the botanist, showing that he conceived the idea of the general or somatic circulation also. Neither of these observers was consistent in his statements, and neither of them formed any notion of the unity or homogeneity of the blood, or of the importance of the heart as a propelling organ.

A more formidable claim is maintained by Dr. Meryon, for the original and prior discovery of the circulation, as expounded by Harvey, by Fra Paolo Sarpi, a Servite monk of Venice, who studied anatomy (with other sciences) at Mantua, about 1570, under Fabricius. To make a long story

¹ The Races of Man, &c., by C. Pickering, M. D., Member of the U. S. Exploring Expedition; Bohn's ed., pp. 91, 97.

short, the evidence is this: Veslingius, an anatomist of high reputation of Padua, asserts in his work entitled *Syntagma Anatomicum*, that he had seen a manuscript of Sarpi's, preserved secretly by his friend Fulgenzio (the secrecy being accounted for by fear of the Inquisition), in which the general circulation, as afterwards taught by Harvey, was clearly set forth. T. Bartholin, of Copenhagen, and Waley, of Leyden, very important contemporary authorities, accepted this as truth, and considered that the Venetian monk had anticipated Harvey. Waley even insisted that Harvey was indebted for his knowledge upon the subject to information of Sarpi's discovery, received through Fabricius.

On the other hand, Harvey, and Bauhin of Basle, a pupil of Fabricius, deny all this. Dr., afterwards Sir George Ent, President of the Royal College of Physicians, an intimate friend of Harvey, published a defence of the latter as the sole discoverer of the circulation, against all other claimants. In treating of Fra Paolo Sarpi, Ent admits the testimony of Veslingius and Peiresc, as to the knowledge of the circulation by Sarpi; but he accounts for it through the transmission to Venice of a copy of Harvey's work, which the latter presented to the Venetian Ambassador at London. Eloy, in his *Dictionnaire Historique* (art. Harvey), adopts the argument and conclusion of Ent;¹ but, curiously enough (as we have found by direct reference), under the article "Sarpi," he gives the correct account of the death of the latter, as stated by Dr. Meryon, in 1623, *five years before Harvey's book was published*. It is obvious, therefore, that Ent's explanation of Sarpi's knowledge is quite untenable; and, since he admits (as quoted by Dr. Meryon) that that knowledge included the true view of the circulation, it is difficult to evade the proof of Sarpi's originality.

As, however, Harvey was too ingenuous to have pretended to a discovery which he knew to be the property of another—and as, moreover, the supposition that he received Sarpi's account of the circulation through his preceptor Fabricius is contradicted by the total absence of evidence of the possession of any such knowledge, in advance of Harvey, by Fabricius himself, we cannot doubt the entire independence of Harvey's investigations, reasonings, and demonstrations. The award of a share of similar honour to the Venetian ecclesiastic (who was undoubtedly an extraordinary man), even if much more fully sustained by extant documentary evidence than it is, could detract nothing from Harvey's glory. Properly, his name will forever remain associated with this department of anatomy and physiology, as its noblest exemplar.

As our author had, notwithstanding the title of his chapter, already entered upon the seventeenth century by the discussion of this subject, it is a matter of regret that he did not, before leaving Harvey, refer also to the great and prolonged opposition which his discovery met with before it was established as a part of science. We apprehend that there is much instruction to the student of human nature as well as of medicine, in the facts—to which Dr. Meryon makes no allusion—that his views were at first "rejected almost universally;"² that they were not accepted in any faculty in Europe before 1650, their first admission beyond the Alps having been made by Trullius, a Roman professor, in 1651; that even their ocular demonstration failed to satisfy the distinguished Caspar Hoffman, professor at Nuremberg,

¹ Dr. R. Willis, in his *Life of Harvey* (Syd. Soc. Series), also follows Ent. Portal (Hist. De L'Anatomie, &c.) denies Sarpi's claim, but without analyzing the evidence.

² *Life of W. Harvey*, by R. Willis. Syd. Soc. Series.

whose puerile objections, in his own amphitheatre, so disgusted Harvey that he laid down the scalpel and left the room; and that, twenty years after the publication of the great discovery, Riolan, of Paris, one of the first anatomists of the age, published a formal attempt at its refutation.¹ It is also a curious piece of scientific history, that Harvey himself was unable to be convinced of the existence or nature of the lacteals, discovered contemporaneously by Asellius,² or of the chylous receptacle and thoracic duct, first thoroughly made known by Pecquet, in 1647.

The pages in which Dr. Meryon continues his history of the anatomists and anatomical discoveries of the sixteenth century are full of interesting matter, which our space will not allow us to analyze. At the close of this chapter, he gives a summary of the nationalities of the noted anatomists of that period, as follows: 111 Italians; 66 French; 41 German; 24 Spanish; 13 English; 7 Dutch; 4 Portuguese; 3 Swiss; 1 Polish; and 1 Danish. One further remark in connection with the same topic may be allowed us. Dr. Meryon's citations upon the true authorship of many discoveries in anatomy tend to lessen the weight of the only valid argument in favour of the arbitrary nomenclature now in vogue; since they show that the names of parts are often given in honour of others than their first observers. Thus, Zerbi is said to have forestalled the discovery of the Fallopian tubes; Achillius that of the Whartonian ducts of the submaxillary glands; Vidus Vidius, of the corpora Arantii; Galen knew of the foramen of Botal; and Vesalius and Fallopius preceded De Graaf in the observation of the vesicles which have received his name. Portal states further, that Waley was the true discoverer of the capsule of Glisson.³ In surgery, likewise, Dr. Meryon mentions that Taliacotins was anticipated in plastic operations, in the fifteenth century, by Vincent Vianens. This credit is given by Portal⁴ also to Brancas, who, as well as his son, as early as 1442, thus restored injured ears and lips; the improvement of Vianens extending to operations upon the nose.

We have already named some of the subjects of the ninth and tenth chapters of the book before us, which must be passed over now without remark. The same is also necessary with Chapter XI., which is upon "Secret Poisoning and Medical Jurisprudence; Monograms and their Influence on the Pathological Anatomy of the Sixteenth Century; Surgery." The volume closes with the twelfth chapter, upon "Medicine and Surgery in England during the Sixteenth Century," and a short sketch of the "Rosicrucians." We cannot help thinking that the former of these subjects might, to advantage, have been worked up more fully even if the latter had been omitted to make room for it.

Our author's nearest approach to an aphoristic form of statement occurs in his last chapter, in a *résumé* of the most important errors of the physi-

¹ The most distinguished and persistent opponents of Harvey's doctrine were Riolan, Hoffman, and Veslingius, besides the less learned Primerose and Parisanus. Its earliest public advocate was Drake, who defended it in an inaugural thesis; it was afterwards supported by Waley, Leroy, Rolfink, Descartes and Ent, before its general adoption.

² Although not altogether unknown to Erasistratus and Galen, Portal (Hist. de l'Anat., &c., vol. ii. p. 453) is authority for the statement of Harvey's antagonism to Asellius's demonstrations, and Rénouard (Hist. of Med., trans. by Comegys, p. 331) for that of his refusal to admit those of Pecquet.

³ Hist. de l'Anat., &c., vol. ii. p. 609.

⁴ Op. citat., p. 169; art. Taliacot.

cians of the times of Cains and Bulleyn. These errors, as he asserts, are such as we, also, are called upon to guard against at the present day—

“1st. That physicians submitted themselves to a position of undue dependence on the opinions and dogmas of others.

“2d. That rare and exceptional cases were the great objects of pursuit, whilst those of common occurrence were unjustly neglected.

“3d. That special facts in pathology, as suggestive of treatment, were comparatively disregarded.

“4th. That credulity and superstition still prevailed.”—Pp. 460, &c.

Concluding his account of the “*Fraternitas Rosæ-crucis*” with some general remarks, Dr. Meryon gives his view of the principal lesson of medical history, down to the beginning of the seventeenth century, in language which, as we have so far quoted him but sparingly, may be cited in full—

“A host of enthusiasts followed in the wake of *Andreæ*; and many empirics, adapting themselves to all times and to all circumstances, found, in his flight of fancy, a source of wealth too advantageous to be neglected.

“It is to this latter fact that I would more particularly direct the attention of my readers, and to the probable cause, as the foregoing history appears to be evidence, of the propagation of quackery, notwithstanding discoveries in anatomy and physiology which would seem to make this plague-spot an impossibility. I would appeal to its existence, however, as well as to medical polemics, as proofs that there was, as there is still, something defective both in teaching and acquiring the knowledge of medicine.

“It is a branch of human learning in which a greater freedom of discussion has been permitted throughout all ages than in any other department of human thought, and a corresponding variety of opinions has been the result. The Methodists, the Pneumatists, the Galenists, nay, even the Sceptics, and other sects and schools, retained their respective representatives up to the period of which we are treating; there was no principle from which to proceed in medical education; and as every dogma possessed certain elements of truth, the credence which all received impressed on medicine an aspect of confusion. To this, and this alone, may be attributed the scepticism which many pragmatists men professed to entertain in relation to the efficacy of the resources of physicians, and hence the charlatan found his success, not only in the ignorance of unbelief but also in the heterodoxy of discordant opinions.

“Now it is because we recognize in the anatomical discoveries of Aristotle and Galen, and still more in those of the anatomists of the sixteenth century, the elements of a science which every student of medicine, whatsoever his creed may be, *must* bow to, that I have undertaken to record those remarkable instances of the explanation of the laws of causation which subsist in the complex phenomena of life; whereby we are brought nearer and nearer towards the comprehension of those ulterior phenomena of disease, and the action of their remedial agents.

“If the phenomena of life are to constitute the solid and irresistible foundation of medical science, it is obvious that they must not be made subservient to every conflicting tenet; but, on the contrary, that they must be isolated from the art, and studied abstractedly, so as to impress on the science which they constitute an original and independent character.

“Being thus established on the immutable laws of nature, and irrespective of any immediate application, biology must of necessity supply the principle by which all medical speculations must be tested, and by which all antagonistic opinions must be judged.

“How far these views have been, and now are being fulfilled, will form the subject of the succeeding volume.”—Pp. 467—469.

There is not, in these didactic sentences, such transparency of language that we can feel certain of apprehending the author's exact meaning.

But, it appears to us, that he designs to reverse, to no advantage, the *dictum* of Celsus,¹ that "Medicine ought to be rational; but to draw its methods from the *evident* causes; all the obscure being removed, not from the attention of the artist, but from the practice of the art."

If Dr. Meryon means to urge that biology must be studied as an accurate and demonstrative science, unclouded by medico-scholastic reveries or dogmas, he is, so far, right. If he would insist further, only, that all medical *speculations* must be tested by biological principles, this, too, may be conceded. But, while we grant that medical science can never attain perfection until made thoroughly rational by the knowledge of all the laws of life, in health and disease, and under the influence of all morbid and remedial agencies, yet we cannot admit that an elementary and imperfect physiology, or a crude pathology, should have the prerogative of unquestioned autocracy in medicine, or even of judging all antagonistic therapeutical opinions.

In a word, we prefer, to the medical philosophy of Dr. Meryon, as above announced, that of Rénouard; who believes and labours to prove that the facts of clinical observation and therapeutical experience constitute as legitimate materials for science as any others; and that, while waiting for the gradual maturing of biology, and accepting from it in its past and present state only suggestions, not rules of action, the art of medical practice finds its safest basis in *methodical and rational empiricism*.

We must now conclude our remarks upon Dr. Meryon's book, by merely mentioning his appendix; in which there are interesting although not absolutely complete chronological tables of "the principal epidemics of the sixteenth century," and of "special facts, contributing to the science of medicine." The opinion must be repeated, that, while the volume we have been considering contains a great deal of agreeable and instructive reading, yet, as a History of Medicine, it can hardly be accepted by the profession as fulfilling all its requirements. For those who have leisure to study it, the work of Sprengel must yet remain without a substitute; while, for philosophic sagacity and soundness, as well as for skill in the grouping of facts and events, that of Rénouard merits, perhaps, a still higher appreciation than it has received.

II. II.

¹ Treatise on Medicine. See Watson's Med. Profession in Ancient Times, p. 117.

BIBLIOGRAPHICAL NOTICES.

ART. XIV.—*Transactions of State Medical Societies:—*

1. *Tenth Annual Meeting of the Illinois State Medical Society, held in Paris, May 8 and 9, 1860.* 8vo. pp. 226. Chicago, 1860.
2. *Transactions of the State Medical Society of Indiana at its Twelfth Annual Session, held in the City of Indianapolis, May 21 and 22, 1861.* 8vo. pp. 56. Indianapolis, 1861.
3. *Transactions of the Medical Society of New Jersey, 1861.* Ninety-fifth Annual Meeting. 8vo. pp. 115. New York, 1861.

1. The *Transactions of the Tenth Annual Meeting of the Illinois State Medical Society* open with an *occasional address* delivered before the members of the society and the citizens of Paris, Edgar County, Ill., by Dr. N. S. DAVIS, of Chicago.

The subject of this address is "*the mutual relations and consequent mutual duties of the medical profession and the community.*" The interest and importance of his subject have been duly estimated by Dr. D., who has treated it throughout with no small ability.

The subject of the *valedictory address* of the president, Dr. David Prince, of Jacksonville, which follows, is on the injustice to which medical men are constantly subjected by the verdict passed upon them by the community amid which they practise, and by the legal tribunals before whom they may be accused because of their failure in cases where success was rendered impossible by circumstances over which they had no possible control.

In the conclusion of his address Dr. P. offers some suggestions with the view to remedy, to some extent at least, the defects in our jurisprudence with reference to jury trials in cases of accusation for alleged malpractice against, more especially, physicians and surgeons.

The two leading suggestions to this end are, 1st. That in every case in which the rendering of a correct verdict requires, on the part of the jurors by whom it is tried, a degree of familiarity with any particular art or science which is not commonly possessed by that class of persons of whom juries are necessarily in great part composed, the reference of the trial and decision of the points at issue to individuals who have had such a special education or training as shall enable them to understand fully the merits of the case and to render a just and equitable judgment. This arrangement, it is believed, would diminish the necessity for testimony on the part of experts. Testimony which it is often difficult to procure in person, and always imperfect and unsatisfactory when obtained by deposition.

The second suggestion is, to give to any party who believes himself aggrieved by the finding of a jury of a lower court, in an accusation for malpractice in any particular art, profession, or calling, an appeal to a higher tribunal, which shall be required to refer the question of right or wrong practice, involved in such appeal, for decision, to a board or inquest of experts, to be chosen in reference to their freedom from the prejudices which may be supposed to influence such as live in the immediate neighbourhood of the parties in litigation.

"Were our jurisprudence so ordered," remarks Dr. Prince, in conclusion, "that justice would be the rule, and a wrong verdict the exception, none but aggravated cases of ignorance or carelessness would usually be prosecuted, and the sufferer thinking himself aggrieved would first take counsel of an adviser versed in the science or art in question rather than of a sharp-nosed advocate who would be ready to undertake the case for a share of the profits."

The two addresses just noticed are followed by a series of reports from special committees.

The first of these reports is from the Committee on *Diseases of the Eye*. It is drawn up by Dr. Edward L. Holmes, of Chicago.

An interesting portion of this report is that which refers to the prevalence of conjunctivitis among the people of the west, and the cause of such prevalence. That all diseases of the eye, but more especially granular and catarrhal ophthalmia, are far more frequent in the Western than in the Eastern States, Dr. H. is satisfied by the facts which he has collected. This greater frequency of the diseases in question, is due to that augmented irritability of the mucous surfaces generally, which is found to exist in all climates marked, as that of the West is, by the comparative warmth of the larger portion of the year, the dryness of the atmosphere, and by high and long-continued winds which sweep at will over wide, extended, and for many months dusty plains. The exciting causes of ophthalmia in the Western States are, according to the reporter, mainly, sudden vicissitudes of temperature, the action of the winds more or less loaded with dust, and, in the cases of the pioneer settlers and cultivators of the prairie lands, careless personal habits, and exposure, when within doors, to the smoky atmosphere of their illy-constructed and badly kept cabins.

While Dr. H. is inclined to rank malarious influences among the predisposing causes of conjunctivitis he does not believe these to be, alone, sufficient to develop the disease; nor is he prepared to refer its prevalence in particular localities, and at particular seasons, to any hidden atmospheric influences, such as give rise to epidemics generally, there being, as he is convinced, sufficient apparent causes always present to account for its prevalence.

The remarks of Dr. Holmes on the assistance, in the diagnosis of the diseases of the eye, derivable from the use of the ophthalmoscope, on relapses in certain cases of iritis, and on sympathetic inflammation of one eye, following deep-seated inflammation of the other, though very concise, are pertinent and of immediate practical application.

Dr. Byford, of Chicago, presents a somewhat extended and most interesting monograph on the *inflammatory affections of the female breast*, which occur during pregnancy and the period of nursing. The remarks of the author extend over the entire subject of mammary inflammation, according as it is seated in one or other, or in several or all of the tissues and structures which make up the organization of the female breast.

It is very certain, as Dr. B. himself admits, that very few, if any, cases of mammary inflammation occur in which the disease is strictly confined to one structure of the organ only. Most generally it will be found to attack simultaneously, or to spread very early to several of them. Nevertheless, we believe with him that to study it, its causes, symptoms, progress, and results, as it presents itself in each of the anatomical divisions of the breast, will lead, more certainly, to the acquisition of clearer views of the nature and proper treatment of mammary inflammation and mammary abscess as they ordinarily present themselves to the practitioner. The entire subject is one that presses itself with peculiar force upon the attention of every practitioner: mammary inflammation being one of the most common affections attendant upon the puerperal state, and, at the same time, one of the most distressing, as well from the pain and inconvenience attendant upon it, as from its tendency to eventuate in the permanent destruction of the usefulness of the organ for lactation, and the impairment, to a very great extent, also, of its symmetry.

The young physician will find few of the simply inflammatory diseases more difficult to manage, none that will so often sorely try his patience, none that will enlist, to a greater degree, his sympathies in behalf of his patient. So long as the infant is allowed to remain at the breast, even though it should be confined to the sound one, in perhaps the majority of cases, the best directed means, however judiciously employed, will be found to fail in arresting the onward progress of the inflammation, and in preventing the formation of a more or less extensive suppuration; while, again, to wean the child is in most cases to consign it to the grave after it has pined away for a few months in a state of misery painful to behold.

The best procedure, were we always able to follow it out, would be to resort

betimes to a system of prophylaxis, based upon a careful investigation of the most frequent causes of mammary inflammation, both predisposing and exciting.

The most constant predisposing cause of the disease is, unquestionably, the pregnant and puerperal conditions. In some cases, indeed, the physiological congestion of the breasts which invariably precedes the commencement of lactation, and is present during, also, its early stage, may run so far to excess as actually to pass over into a pathological condition. This is particularly liable to happen in young, plethoric, primiparous females, and when it does happen it gives rise to true mastitis, or inflammation of the glandular structure of the breast. In very many instances, however, an increased predisposition to inflammation is due to certain conditions of the organ produced independently of pregnancy or lactation; this, as well as the major part of the exciting causes, is in a great measure under the control of the patient. It is very certain that, in most cases, the exciting causes, at least, may be guarded against by the exercise of a very little care.

The paper of Dr. Byford will be read with interest, and, we are persuaded, with much profit. It presents a very full and accurate description of the symptoms, course, and terminations of mammary inflammation, accordingly as it attacks one or other or several of the tissues and structures of which the female breast consists, with a rational account of its usual causes, and a clear exposition of the treatment best adapted to arrest its progress, or, when it has run on to suppuration, to guard, as far as possible, the mammae from any permanent injury to either their function or their shape.

The next report is an exceedingly able one "*on surgery*," drawn up by Dr. Daniel Brainard.

Many of the facts embraced in this report have already been noticed in this journal. Still, of much of its contents a valuable abstract might be furnished; among these we may indicate the writer's remarks on the treatment of united fractures, the remedying of the deformity consequent upon angulation of bone after fracture, and the flexion of the limbs from anchylosis; the treatment of chronic hydrocephalus, spina bifida, and empyema by injections of iodine. The facts upon which these remarks are based, are, for the most part, personal to Dr. Brainard. We must content ourselves by directing attention to them, as well as to the very excellent essay on metallic sutures and ligatures by Dr. David Prince, and the valuable history of seventy-one fractures of different bones by Dr. Edwin Powell, both of which are included in the report of Dr. Brainard.

The report next in order is on *the changes in the composition and properties of the milk in the human female produced by menstruation and pregnancy*, and on *the food proper for infants when deprived of the milk of the mother*. It is from the pen of Dr. N. S. Davis, of Chicago, and is marked throughout by the same sound practical views which usually characterize the professional contributions of that gentleman.

From the facts and analyses collected by Dr. D., he is led to infer that the occurrence of pregnancy during the ordinary period of lactation either speedily reduces the quantity of milk secreted or lessens the proportion of solid or nutritive constituents to such a degree as to render it insufficient for the proper nourishment of a child over six months old.

"In a small proportion of cases, however, the milk secreted continues abundant and of good quality, but the health of the mother rapidly declines, while, in a still smaller proportion of cases, the mother and child both continue well nourished and healthy. Taking these statements as correct, they suggest two questions of much importance. First. Whenever pregnancy occurs during lactation, and the mother or child, or both, are found to exhibit symptoms of anemia should the child be immediately removed from the breast, or should an effort be made to devise such diet and medicine as would enable the mother to assimilate sufficient for herself, and both the intra and extra-uterine offspring? Second. If an attempt is made to sustain the mother and permit lactation to continue, what dietetic and therapeutical measures would be most efficient for that purpose?

"The defects in the milk, as shown by analysis, as well as the condition of the mother, readily suggest a diet containing abundance of caseine, gluten, or albu-

men, and such tonics as the compound syrup of the phosphates, or, still better, the hypophosphites of soda, potassa, lime, and iron; but the committee are unable to report a sufficient number of clinical cases to determine the actual value of such a course. In the great majority of cases thus far observed, nothing has been found safe short of an early removal of the child from the breast."

The next article is a short essay on the *nature, course, and treatment of rheumatism*, by Dr. JAMES S. WHITMIRE. The object of this essay is not so much to institute a more thorough investigation into the course of the disease or the character of the inflammation attending it, both of which Dr. W. presumes to be sufficiently well understood, as to invite attention to the suggestion originally made by Dr. John K. Mitchell, of Philadelphia, that the inflammation in rheumatism is brought about and sustained by functional derangement of the spinal cord—which derangement is the result of either active or passive congestion. We hardly think that Dr. W. has succeeded in either confirming or illustrating the pathology of rheumatism advocated by him, and which, with some slight modifications, has received the sanction of some of our leading pathologists.

Next in order is a report on the *medical uses of veratrum viride*, by Dr. A. HARD, of Aurora. The facts collected by Dr. H. sustain the general estimate of the remedy by the profession as an arterial sedative destined to replace all others, including the lancet, in the treatment of pneumonia, rheumatism, dysentery and peritonitis. In many cases of puerperal fever it will be found an admirable means for the reduction of the inordinate frequency of the pulse, without endangering the safety of the patient.

A report from the Committee on *Practical Medicine*, is next presented by Dr. G. GOODBRAKE, of Clinton, Illinois. The report is made up exclusively of excerpts from communications addressed to the committee by physicians in different parts of the State.

In a communication from Dr. NIGLAS, of Peoria, it is stated that *scarlet fever* prevailed extensively as an epidemic, in his immediate neighbourhood. In respect to the origin of the disease, according to Dr. N., there were reasons for believing that it may have been produced spontaneously by certain local morbid influences, independent of contagion from without.

Early in the spring of 1859, disease, he remarks, commenced to appear, presenting many of the characteristics of one or other of the forms of erysipelas. At first the cases were marked merely by fever, attended by the characteristic pulse, and the peculiar condition of the urinary secretion observed in erysipelas, but by no other physical sign of the disease. As the season advanced erysipelatous inflammation of the face made its appearance with slight symptoms of sore throat, soon afterwards well-marked cases of scarlatina were observed, and the disease speedily prevailed as the dominant epidemic.

With Dr. N., we are convinced that a close relation exists between erysipelas and scarlet fever. The epidemics of the latter have been found, in numerous instances, to be ushered in, accompanied, or followed, by the prevalence of the former disease.

Dr. Coleman furnishes the committee with an interesting account of an epidemic of *dysentery* which prevailed at Le Roy, during the summer and autumn of 1858.

During the winter months of 1859-60, writes Dr. Prince, of Jacksonville, pseudo-membranous inflammation of the respiratory passages was prevalent. The disease in some cases predominated in the larynx, giving rise to croup; in other cases bronchial disease predominated over that of the larynx and trachea, though in fatal cases these were usually combined. In other cases, again, the disease was confined to the nares, pharynx, and mouth. There was, sometimes, no cutaneous eruption—while, occasionally, the diphtheritic inflammation accompanied or followed an attack of scarlatina, which was at the same time epidemic, so as to lead to the suspicion that diphtheria and scarlet fever are the same affections, only differing in form.

The diphtheritic inflammation usually commenced in the palate and fauces. It always manifested a tendency to travel more or less speedily over the adjoining surfaces. In one fatal case the larynx, Dr. P. remarks, escaped until within a few hours of death, when croupal symptoms manifested themselves. There

was no distinct false membrane, a sanious discharge took place from the mucous membranes of the mouth, fauces and nares—especially from the latter. The dyscrasy seemed too great for the exudations or secretions to consolidate to any extent. What consolidation did take place, was in small specks or patches, which were soon loosened and detached by the fluid excretions poured out around them.

The disease was attended, invariably, by prostration, indicating the necessity of a supporting treatment.

The local application of a strong solution of nitrate of silver Dr. P. did not find to act so satisfactorily as he had been led to suppose would be the case. A weak infusion of capsicum, and a saturated solution of chlorate of potash, singly or in combination, in his hands, proved far more satisfactory. In the only cases in which he has seen the muriated tincture of iron applied, the effects were not such as to encourage him in its use.

The cautious use of alcoholic stimulants, the liberal use of concentrated nourishment, and the mildest and least debilitating laxatives, have seemed to Dr. P. to be the most rational as well as the most successful treatment.

If, Dr. P. remarks, the term croup be restricted to those cases of diphtheria in which the pseudo-membranous formation does not extend beyond the larynx; then, in cases of croup, we should infer, *à priori*, that the operation of tracheotomy would be very nearly as successful as when performed for the removal of foreign bodies from the trachea. But such is not the case. In a great majority of cases which, from all the circumstances attendant upon them, we should feel perfectly warranted in pronouncing those of uncomplicated croup, and in which the operation would seem adapted to afford the most prompt and permanent relief, it will fail to do so. Even where the operation has for a period seemed entirely successful, mucous rattle and laboured respiration will speedily ensue, and the hopes so fondly cherished by friends and medical attendants, will be cruelly disappointed. Dr. P. has operated in five of the cases referred to, but without the good fortune of saving a single one of the patients. In three, death was immediate. In the other two, death seemed impending, when, by opening the trachea, the relief that ensued was so striking as to lead to a strong hope for the final recovery of the patient. In both cases, however, death resulted in about four days subsequently from mucous inflammation within the chest. In one of these cases a solution of nitrate of silver was applied to the trachea. Were he again to operate, Dr. P. remarks, that he should make a very free application of this or some other mild caustic.

In former years, Dr. Nance, of Stark County, writes that he had but little confidence in any medication in scarlatina; but, a year or two since, he met with the recommendation, by a French physician, of carbonate of ammonia freely administered as almost an infallible remedy in the disease. Soon afterwards he had an opportunity of trying its effects in some malignant cases of scarlatina, attended with spasms, &c. He administered every hour or two a portion of a solution of ammonia containing three grains of the article. Complete recovery ensued. From thirteen to fourteen patients with scarlatina, being all who were treated in this manner, Dr. N. states, recovered.

Dr. Y. D. Fitch, of Kewanee, in a paper intended as an appendage to the report on obstetrics, proposes the use of *perineal pressure to aid in the expulsion of the child in parturition*.

The pressure proposed by Dr. F. consists in the introduction of one or more fingers into the vagina, successively, as the os externum becomes dilated. When two or more are introduced they are to be spread as much as possible, so as to put the walls of the vagina upon the stretch. Traction or pressure is made in a direction downwards, outwards, and backwards, so as to distend the os externum and render smooth and tense the walls of the vagina. This procedure was suggested to Dr. F. by the effect produced by the pressure of the child's head during its passage over the perineum in natural labour. He has practised it, he states, successfully, for the last six years, in more than two hundred cases of parturition. In some few cases the procedure is unproductive of any good effect. It will be found that, in such, the desired result will be derived from pressure made upon the anterior lip of the cervix uteri.

There can be no doubt that the manipulation recommended by Dr. F. will, in most cases of labour, have the effect of increasing the frequency and force of the expulsive pains; and that, in the hands of the well-instructed and experienced accoucheur, it may occasionally be resorted to as a useful means of facilitating the birth of the child. When, however, it is inopportunately put in practice and rashly or unskillfully executed, serious injury may be produced by it. The danger of its being abused, and the evils liable to result in consequence, far counterbalance, we are persuaded, the small amount of good its employment may effect.

2. The *Transactions of the Twelfth Session of the Indiana State Medical Society* commence with the "annual address" of the President, Dr. B. S. WOODWORTH, of Fort Wayne. There is exhibited throughout this address a spirit of fault-finding—of arrogant indiscriminate condemnation indicative of anything rather than a candid and discriminative mind. The animus evinced by the writer of the address in the major part of his remarks cannot fail to receive as pointed a condemnation as will his therapeutical teachings. An opposition has sprung up within a short period past, in certain quarters, to all active treatment in acute diseases, and to the employment of certain of our most efficient remedies, and those adapted to the widest range of cases, and when judiciously administered among the least dangerous, in either their immediate or remote effects. This opposition, on the side of which Dr. W. would appear to range himself, when not the result of false reasoning, inaccurate observations, and deficient experience, will be found, we fear, to be too often prompted by a desire to command applause and patronage by meanly truckling to popular prejudices.

A careful examination of the facts in our possession will, we believe, prove very conclusively, that an equal, if not a greater amount of mischief cannot fail to result from too inert a treatment of disease—one purely expectant—as from one of too active—too violent, if you please, a character. In the one case there is endangered the formation of diseased conditions of important organs, of a more or less serious and permanent character, while, in the other case, the usual result will be a state of excessive prostration, by which convalescence is rendered tedious, and a foundation even may be laid for the occurrence of some serious affliction in the future.

The address is followed by a report on "*medical education*," by Dr. JAMES F. HIBBERD, of Richmond, Indiana. The plan of medical education set forth by Dr. H. contemplates the doing away entirely with private tutelage. The reasons assigned for it are, mainly, the want of proper qualification of "general practitioners" for the instruction of medical pupils, from their having neither the books, or apparatus, the time or inclination, even when they have the ability for teaching.

To secure to the community the services of a well-educated medical profession, Dr. H. proposes the incorporation of a sufficient number of competent physicians into an institution having for its object to determine the qualifications requisite in such as would enter upon the practice of medicine in either or all of its departments, by subjecting to a proper examination all who shall offer themselves as candidates for the doctorate and conferring it upon those only whom they shall find to be competent.

The next report is on "*the use of the microscope*" in pathological investigation, by Dr. CALVIN WEST, of Hagerstown, Indiana. It presents a very rapid sketch of some of the more important pathological facts that have been developed by the aid of the microscope. To these there are daily being added others of a still higher importance in a practical point of view; while the mistakes which were made in the early application of the instrument to the investigation of disease, have been in a great measure detected. The pathologist is in consequence enabled to arrive at more positive, definite and accurate conclusions, than before in respect to the presence, nature, and extent of diseased structure and diseased products.

The report "*on new remedies*" by Dr. T. B. HARVEY, of Plainfield, Indiana, which is next in order, presents a highly interesting notice of the leading remedial agents recently introduced to the notice of the physician, and of the appli-

cation of certain of those already known to the treatment of diseases in which their efficiency had not before been noted.

The articles briefly noticed in the article before us are, *the double iodide of iron and quinine*, as a remedy of peculiar efficacy during the period of convalescence from all such diseases as induce decided impoverishment of blood. *Oxalate of cerium*, as a tonic, especially in gastric affections attended with frequent and distressing vomiting—and for the relief of vomiting occurring during pregnancy. *Iodide of ammonia* in constitutional syphilis. *Propylamine* in rheumatism. *Apiol* in amenorrhœa and dysmenorrhœa. *Persulphate of iron*, in saturated solution, as an injection per vaginam, for the restraining of post-partum hemorrhage. *Perchloride of iron* internally and externally as a hæmостatic, and as a remedy in purpura and diphtheria. *The hypophosphites of lime and soda* in phthisis and atonic dyspepsia. *Veratrum viride* as a sedative in many diseases. *Hypophosphate of quinine* in intermittent fever. *Hydrochlorate of ammonia* in neuralgia. *Belladonna* as an antilactescent. *Hydrocyanate of iron* in epilepsy. *Tartarized antimony*, in large doses, in traumatic tetanus. *Woorara* in the same disease. *Iodide of potassium* in asthma. With some very general remarks on the subject of *hypodermic* medication.

All the interesting facts which Dr. H. has noticed in the above report have been already furnished to the readers of this journal, either in its original department or in the quarterly summary.

We have next the history of three cases, related by Dr. J. A. COMINGORE, of Danville, Indiana.

The first of these cases is one of *stricture of the œsophagus*, the result of inflammation, in a female, 26 years of age. There exists in this case probably ulceration in the vicinity of the stricture. The patient is rapidly improving under the use of the solid nitrate of silver, applied to the vicinity of the stricture by means of an elastic bougie.

The second case is one of *naso-pharyngeal polypus*, in a lad of 4 years of age. The chief symptom was obstructed respiration caused by the entire blocking up of the posterior nares by the polypus. The latter was removed with great relief to the patient. By the end of a week, however, the tumour again made its appearance and attained a size equal to what it had in the first instance. It was again entirely removed, and the surface from which it sprung cauterized with a strong solution of nitrate of silver. Notwithstanding, in less than a week the tumour had grown, once more, to such a size as to threaten the lad with suffocation. For the third time it was removed, and the place of its attachment cauterized as before. The polypus, however, again reappeared and was again removed—but with no greater success than previously. Dr. Mussey, of Cincinnati, now saw the patient, and pronounced the growth to be the result of malignant disease. He advised 2 grs., in solution, of iodide of ammonia, to be given every four hours, and a wash to the parts of a solution of ʒj persulphate of iron in ʒj of water, to be applied with a mop twice a day. Ten days subsequently the patient died.

The third case is one of *placenta prævia*. The placenta was implanted centrally over the os uteri. There was profuse hemorrhage. Dr. C. immediately detached the placenta from the uterus. The os uteri being dilated, but the uterine contractions very trifling, he gave the patient every fifteen minutes a drachm of the tincture of ergot, with, at the same time, a little brandy and water to relieve the faintness from loss of blood. After three doses of the ergot had been administered strong expulsive pains occurred, and at the end of an hour, the child—a female—was expelled, dead and exsanguine. The placenta was pushed before the head into the vagina where it was left, to the right. Not much hemorrhage followed its delivery. The patient continued to do very well, until the tenth day after delivery, when she was attacked with crural phlebitis, which, with great *naïveté*, Dr. C. assures us “considerably retarded her convalescence.”

3. The Medical Society of New Jersey ranks among the oldest of the associations established in our midst “for the advancement of medical knowledge and the mutual improvement of their members.” It is believed that its claim to

priority of organization over all similar associations in this Western Hemisphere is well founded. Formed in 1766, it has now been in existence for nearly a century. The amount of good it has been, during that period, instrumental in effecting, in its efforts to carry out the objects of its organization, it would be very difficult to estimate. So far back as its history can with certainty be traced, the society has been ever found arrayed in defence of legitimate medicine, administered by well-instructed practitioners, governed by a strict code of medical ethics.

The 95th session of the society, held January 22d, 1861, was opened by an address from the President, Dr. W. ELMER. The theme of the address is the progressive nature of medical science, and the several gradations through which the medical profession has passed in its onward and upward career.

The views advanced by Dr. Elmer are sound and manly—while his entire address is replete with instruction.

From the report of the standing committee we learn that the year 1860 was marked by an unusual freedom from disease throughout the State of New Jersey. From the general summary which is given by the committee of the reports received from the county societies, it is stated that every one of the latter notice the fact of the prevalence of diphtheria, to a greater or less extent, as an epidemic, during the whole of the year 1860. It appears, however, that the disease was most prevalent in the counties of Cumberland, Essex, Gloucester, and Hunterdon. It is regarded by all the reports as not being a local affection, but one consisting, essentially, in a diseased condition of the blood. Most of them pronounce it a specific affection, altogether distinct from scarlatina and membranous croup.

The membraniform exudation, from which the disease derives its name, and which constitutes its chief diagnostic symptom, is described as first appearing in the form of isolated patches, but becoming, sooner or later, in the course of the attack, continuous over the veil of the palate, the fauces, and the adjacent parts; and, in the more severe and fatal cases, spreading into the larynx and trachea.

The disease, in the reports referred to, is set down as an epidemic—the result of either contagion, infection, or malarious influences.

In some sections of the State it appears to have prevailed to a very limited extent, and in a particularly mild and benignant form. It was not attended, in any instance, with cutaneous eruption. In its more severe forms, it was, with few exceptions, of a low type. It prevailed alike in high, well drained, non-malarious districts, and in low, marshy, insalubrious districts. A similar statement is made in nearly all the reports we have of the occurrence of the epidemic in Europe and this country.

The greater portion of the facts contained in the reports before us, which have a direct bearing upon the etiology of diphtheria are, to say the least of them, very loosely stated, while they are altogether inconclusive in their character. As is the case with every other epidemic malady, there can be very little doubt that the prevalence of diphtheria in any given locality will be increased, and the character of the disease augmented in malignancy by malarious causes, and by the crowding together of patients in damp, filthy, badly ventilated and over-populous neighbourhoods and dwellings; but that the disease can be generated by local causes alone we have strong doubts. In respect to the question of its propagation by contagion, the facts deducible from the history of its prevalence in New Jersey certainly furnish no conclusive evidence,

Though often fatal, the disease was found, we are told, to be as readily controlled by an appropriate treatment, judiciously administered, as any other grave disease. Dr. Bacon, of Cumberland, reports 8 deaths in 200 cases; Dr. Rosenberger, of Hunterdon, reports 3 deaths in 80 cases; Dr. Southard, of Essex, 4 deaths in 40 cases. Giving, in the aggregate, a mortality of about *four per cent.* This mortality will be found so extremely small when compared with that which is reported to have occurred in other places where diphtheria has prevailed epidemically, that every one will become anxious to learn what was the nature of the treatment pursued by those who, in the management of the disease, have been so eminently successful. There appears to have been a remarkable unani-

mity among the practitioners of New Jersey in their several methods of treatment, which were all of a tonic and sustaining character—the disease being in the majority of cases characterized by asthenia. In respect to the particular remedies which are reported to have been most successful in conducting the disease to a favourable termination we find enumerated the tincture of the sesquichloride of iron—given in doses of from 10 to 15 drops, in water, every three or four hours; the chlorate of potash; quinine, brandy, milk punch, chloric ether, etc. Locally, to the throat were applied, and with more or less success, the nitrate of silver in solution—20 to 50 grs. to the ounce of water—sulphate of zinc, and tannic acid.

The next most important epidemic noticed in the reports before us, is that of scarlet fever. It appears to have prevailed chiefly in the cities of Newark and Camden, while the residue of the State, so far as heard from, was to a very great degree exempt from the disease.

In Newark, scarlet fever made its appearance in the autumn of 1859, and continued to prevail, with short intervals, up to January, 1861. The number of deaths from the disease reported to have occurred from September, 1859, to January, 1860, was 96; while during the ensuing year, ending January, 1861, the number of deaths reported amounts to 233, giving a total of deaths from scarlatina, during the 16 months, of 329. The deaths are computed as having been *one* in every *ten* cases, which would make the entire number of cases of scarlet fever that occurred during the period just indicated, *three thousand two hundred and ninety*.

In Camden, scarlatina commenced in the latter part of June, 1860, and continued to prevail up to the close of the year, and during the month of January, 1861. It was attended with considerable mortality.

Pertussis and measles are noted as having prevailed during the year 1860 in different portions of the State. The latter exanthem was especially rife in Orange County, during the last four months of 1860, and still continued to prevail during the month of January, 1861. It exhibited nothing unusual in its symptoms or march, and was, in general, of a mild type.

In respect to malarious, paludal, or periodic fevers, a curious, though by no means novel fact, is noticed in the reports under consideration. It is, that, in those sections of country and neighbourhoods where, in former years, these diseases prevailed most extensively—constituting the constant autumnal endemic—they are now, comparatively, of unfrequent occurrence; in some districts they have even entirely disappeared. A similar state of things has been recorded as true in respect to our own and other States. This diminution or disappearance of malarious fever has been attempted to be accounted for from the better drainage of the country, by which large tracts of overflowed and marshy land have been redeemed; from the improved and more extensive culture of malarious districts, and the discontinuance and emptying of numerous large mill ponds. There is no doubt that in this way the disappearance, to a greater or less extent, of periodical fevers, noticed in different portions of our country, is very satisfactorily accounted for. It will not, however, furnish a satisfactory explanation of the fact, applicable to every locality. In our own State, along the shores of many of our rivers in the interior, which have undergone no apparent change since the period when, every autumn they were the fruitful source of disease to all who dwelt or even tarried, for a season only, in their immediate vicinity. That the endemic constitution of the atmosphere of these localities has undergone a change is very certain; the nature and cause of the change are as yet unknown.

Another curious fact in the history of our epidemics may be here noticed, notwithstanding it is not prominently brought forward in any of the reports embraced in the volume of *Transactions* under review. We refer to the increased prevalence of fever of a continued type—typhoid fever, for example—in malarious districts, in proportion to the decreased prevalence there of fever of a periodic type—that usually referred to a paludal or miasmatic source.

Among the reports in the volume before us—all of which are replete with matter of a highly interesting character—we would especially notice the one on “the Medical Topography of Newark,” by Dr. J. HENRY CLARKE. It is in every

point of view, so far as it goes, an able and interesting paper. Though it is true, that the several questions involved in the general scope of the report are but slightly touched upon, it nevertheless will be found to furnish a valuable basis for a thorough sanitary survey of the city of which it treats, preliminary to the adoption of measures adapted to abate its endemic maladies, and to protect it, as far as possible, from the visitation of a threatened epidemic, or, if one should visit the city to limit its spread, and disarm it of its malignancy.

Besides the reports from counties, the *New Jersey Transactions* embrace two papers on special subjects. The first of these is an essay of some pretension on "the Mind and the Nervous System in their general relations to Disease," by Dr. EZRA M. HUNT.

The author of this essay has endeavoured by what he calls "a passing reference to facts" to give due prominence to "the nerve origin of disease," and to show, that nervous and mental states, are at least to be under supervision, and an effort made in practice to reach the *sources* of morbid phenomena in the abnormal conditions of certain portions of the nervous system, rather than merely to turn all our efforts simply to removing their results.

We believe fully with Dr. Hunt that in every attack of disease the nervous system plays the most important part, and that the morbid phenomena and lesions of structure—the disturbances of functions and depravation of the secretions owe their origin, directly or indirectly, to disturbances of nerve action. We believe with him, too, that in all cases where we are able to detect the sources of morbid conditions and phenomena it is to these that our remedies should be mainly and primarily directed; and that, consequently, in all diseases, such means as have the effect to modify abnormal nerve action are among the most important of our *materia medica*. We believe with him, still further, that in the treatment of every form and grade of disease, the proper management, from first to last, of the entire regimen of the patient—not only the food he eats—the water he drinks—the air he breathes, his bedding and his clothing, but also the mental, moral, and emotional influences to which he is subjected, is of equal importance with a strictly remedial treatment. But while in the management of disease, we would not have the practitioner overlook the important part the nervous system plays in the production, propagation, and continuance of morbid states, and morbid phenomena—nor neglect any of the remedial measures especially adapted to restore that system to its normal state, we, at the same time, must insist that he does not overlook entirely whatever disturbed condition of any organ may be present, nor refrain from the application of remedies directed to restore such organ to its healthy state and functions.

The second essay is "on the Water-cure Establishment in the town of Orange, N. J." From the facts which have fallen under the notice of Dr. Stephen Wickes, the author of the essay, he is convinced of the impropriety and danger of the so-called "water-cure," as administered without due reference to the nature, and type, and stage of the disease in which it is practised; the age, sex, condition and idiosyncrasy of the patient, etc. etc. The danger attending its indiscriminate use is referred by Dr. W. to its liability to produce more or less congestion of the central organs, and depress unduly the vital powers. He admits that the local application of cold water for the reduction of inflammation and congestion, and for the arrest of hemorrhage, will be found beneficial in a very large class of cases. Even its general application in certain morbid conditions will exert a prompt curative effect.

Dr. W. very correctly remarks that the employment of water as a curative agent is no new thing. What is now known of it as a remedy for disease—all that is really valuable in its varied remedial application—cold—warm—or in the form of vapour; even the famous packing process—was known and practised by medical men long before the inventor of the modern system—if it may be called a system—of hydropathy was born.

D. F. C.

ART. XV.—*Reports of American Institutions for the Insane.*

1. *Of the Maine Insane Hospital, for the year 1860.*
2. *Of the Vermont Asylum, for the fiscal year 1859-60.*
3. *Of the McLean Asylum, for the year 1860.*
4. *Of the State Lunatic Hospital, Worcester, Mass., for the fiscal year 1859-60.*
5. *Of the Retreat, at Hartford, Conn., for the fiscal year 1860-61.*
6. *Of the Bloomingdale Asylum, for the year 1860.*
7. *Of the New York City Lunatic Asylum, for the year 1860.*
8. *Of the King's County (N. Y.) Lunatic Asylum, for the fiscal year 1860-61.*
9. *Of the N. Y. State Lunatic Asylum, for the fiscal year 1859-60.*

1. THE medical record of the *Maine Insane Hospital*, for the year 1860, presents us with the following statistics:—

	Men.	Women.	Total.
Patients at the beginning of the year	129	108	237
Admitted in course of the year	84	52	136
Whole number	213	169	373
Discharged, including deaths	82	51	133
Remaining at the close of the year	131	109	240
Of those discharged, there were cured	38	25	63
Died	18	13	31

Causes of death.—Phthisis pulmonalis, 7; epilepsy, 4; chronic diarrhœa, 4; general paralysis, 3; exhaustive mania, 3; pneumonia, 2; dropsy, inflammation of the bowels, scrofula, dysentery, congestion of the brain, old age, erysipelas, and suicide, 1 each.

The death by suicide was the only one which has occurred at this hospital during a period of fifteen years.

In the course of the winter a series of lectures, by the Assistant Physician, was delivered before the patients. A "local paper," entitled "*The Hospital News-Letter*," was "published" once in two weeks, and likewise read to the inmates.

The patients' library now contains about two thousand volumes. Dr. Harlow recommends the introduction into the hospital of the system of forced ventilation. At present, the sole dependence, for atmospherical change, is "the ordinary ingress of fresh air through doors and windows."

We take the subjoined from the remarks upon *oinomania*:—

"We may define *oinomania* to be an irresistible impulse to indulge in the use of intoxicating substances. It differs quite materially from ordinary drunkenness, modernly styled alcoholism, which arises from a voluntary use of alcoholic beverages, and should be carefully discriminated. While we recognize on the one hand a diseased cerebral condition, which usurps the will and impels one on to a most extravagant use of intoxicating drink, we must not on the other hand ignore the existence of ordinary intemperance in persons who possess a perfectly normal brain, but who choose to indulge their appetite to excess, because they think they have a right so to do. To conclude that there is no inebriety without disease would be as erroneous as to deny that there is no disease which gives rise to inebriety. Both are true, and both alike result in intoxication. The question then arises, how shall we know the one from the other? We may be materially aided in a diagnosis by learning the psychological history of the family to which the individual belongs. When we see the offspring of an insane parent given to frequent, habitual intoxication, we may strongly suspect the existence of an abnormal cerebral condition. A similar suspicion would arise, if we should find the son of an intemperate father manifesting an appetite for stimulants in early life—indeed, an early developed appetite of this kind in any person, would point in the same direction; but, the most prominent pathognomonic symptom attending the disease, is the utter inability to control the thirst for drink. Regardless of all the higher emotions, against his conscience, his reason, and his better judgment, the *oinomaniac* is blindly driven on by the

ruthless monster. So complete is the loss of self-control in this disease, that in order to appease his morbid appetite the unfortunate victim will resort to measures the most extreme. * * * * * Owing to the fact that all cases of inebriety without distinction have been looked upon as the result of moral obliquity rather than physical weakness or organism, they have been left to take their own course—to reap the fruit of their own sowing without let or hindrance. But thanks to an overruling Providence, the poor unfortunate inebriate is beginning to receive, through an enlightened community, a more benevolent consideration. It is, I believe, acceded by all medical men, that the first great step in the treatment of inebriety or oinomania, is restraint, and this cannot well be accomplished without seclusion. Without these the disease cannot be successfully treated, indeed, the safety of the community and of the patient himself often demands them."

2. The general results, at the *Vermont Asylum for the Insane*, for the fiscal year ending July 31, 1860, were as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	212	219	431
Admitted in the course of the year	78	65	143
Whole number	290	284	574
Discharged, including deaths	73	65	138
Remaining at the end of the year	217	219	436
Of those discharged, there were cured			58
Died			37

Dr. Rockwell gives the following summary description of the system of treatment pursued at this hospital:—

"So large a proportion of the patients suffer from some physical disease or functional disturbance that immediate attention and investigation are always made of each case on its first admission into the institution. The medical treatment is not confined exclusively to any particular theory, but where any disease is manifested, the individual case receives special attention, and that medication is adopted which its symptoms indicate. Most of the patients received into this institution have passed the acute stage of their disorder, and require invigorating remedies and nutritious food for their recovery.

"The great principles of our moral treatment are kindness and employment. It is necessary that kindness should be accompanied by mildness and decision, varying according to the peculiarities and temperament of each patient. The employment selected for each should be such as will most interest his mind and divert it from his delusions. It should also be agreeable at the time, and such as will afford pleasant reflections afterwards."

3. From the report of the *McLean Asylum for the Insane*, we obtain the following numerical history of the treatment during the year 1860:—

	Men.	Women.	Total.
Patients at the beginning of the year	85	90	175
Admitted in course of the year	58	63	121
Whole number	143	153	296
Discharged, including deaths	52	57	109
Remaining at the end of the year	91	96	187
Of those discharged, there were cured	15	24	39
Died	10	14	24

The already elaborate system of moral treatment adopted at this hospital, has been enlarged in its means and its effectiveness by the introduction of gymnastic exercises scientifically pursued. This is a novelty in establishments for the insane upon this side of the Atlantic. We extract from the report the remarks in relation to it.

"In addition to the standard amusements of ball, billiards, and bowling, for which we have abundant facilities, an innovation pleasantly combining diversion

and exercise, has been made under the direction of Dr. Dio. Lewis, in the introduction of his valuable system of gymnastics. He has spent much time in patient and judicious instruction to large classes on both sides of the house, and succeeded in interesting and accomplishing them in the numerous feats of his art. Much benefit has resulted therefrom, not confined to those actually engaged in the exercises; the bystanders could laugh heartily at the efforts of others, and a new interest has been attached to other varieties of physical exercise, and to the common amusements of battledore, bagatelle, chess, and cards."

The subjoined extract will furnish an idea of the extensive facilities for literary entertainment enjoyed by the inmates of the asylum.

"About three hundred and fifty volumes have been added to the library during the year. We receive all the principal reviews, magazines and newspapers of the day, foreign as well as local, affording an ample and entertaining supply of reading. The events of the day in their succession—the arrival of the Great Eastern, the visit of the Japanese, the Italian war, the movements of Garibaldi, the Prince of Wales' progress, the political campaign, election news, the capture of Pekin, and the rights of secession and coercion, have each excited attention, and have been commented upon with as much interest and perhaps as wisely as in the great world outside of us."

From Dr. Tyler's accurate and interesting description of *classes of patients*—the classification being based upon the form of disease—we make the following extract, in the belief that the information contained therein is not generally disseminated:—

"The clear comfort and tranquil happiness of persons in advanced convalescence from mental disease, and especially from its depressing forms, as manifested in every action and in every feature, and as described by the individuals themselves, are rarely equalled under other circumstances, and approach as near completeness as any condition vouchsafed to mortal man. Often not a cloud casts its shadow, nor a care presses upon the heart brimming over with kindness to all around, and with devout thankfulness to God. Like all other emotions, these are not confined to the possessor, but are eminently diffusive, and radiate upon every body with whom he associates, composing the restless, assuring the doubtful, and cheering and comforting and lifting the burden of all.

"There are a number of persons in every asylum differing from each other in their personal peculiarities and form of disease, whose condition unfits them entirely for the duties and enjoyments of home and general society, and forbids any reasonable expectation of recovery, but who still have a keen appreciation of all the comforts and amenities of life. They are methodical in their habits, perhaps intensely so; are never troubled by the restrictions of the house, and highly value its system and routine. They are careful of their dress and personal appearance, and of the arrangement of the furniture and conveniences of their rooms: they enjoy their walks and drives, and amusements and books, and are always busily and usefully occupied. They are happy alone, and are also fond of the society of their companions; they are thankful for any favours shown them, and are always ready with kind offices for those who seem to require their attention. They regard the asylum with almost reverential feelings, invariably commend it and all connected with it, and are always found on the side of good order in any time of murmuring or discontent. If they consider it a *duty* to occasionally speak of the superior comforts and freedom of home, they make an ingenious exception of themselves, and always have a good reason for never being quite ready to go thither. Persons of this class enjoy a great deal themselves, and confer a great deal of happiness upon their fellow-patients, and upon all in any way connected with them, and being more than an offset to their antipodes in faith and feeling, contribute largely to the comfortable side of asylum life."

4. The report of the *State Lunatic Hospital*, at Worcester, Massachusetts, contains the following summary of the records for the fiscal year ending with the close of September, 1860:—

	Men.	Women.	Total.
Patients at the beginning of the year	152	165	317
Admitted in the course of the year	105	110	215
Whole number	257	275	532
Discharged, including deaths	102	99	201
Remaining at the end of the year	155	176	331
Of those discharged, there were cured	65	64	129
Died	12	10	22

Died of epilepsy, 5; exhaustion, 4; consumption, 3; marasmus, 3; old age, 3; maniacal exhaustion, 2; suicide, 1; variola, 1.

"The standard of health, though always low in hospitals for the insane, has been, during the year, higher than usual. Late in the autumn there were a few cases of pneumonia of a mild character; in the spring there were several cases of varioloid and smallpox; and in the summer three or four cases of measles.

"Three patients died during the year who were more than eighty years of age. Two were between the ages of seventy and eighty years, and three were between sixty and seventy years of age."

At some of the European institutions for the insane, it has been the practice, for many years, to keep an accurate daily record of the number of patients employed in useful labour. Upon this side of the ocean, we have dealt too much in general assertions in regard to this subject. We are glad to perceive, in the report now under notice, a departure from the usual course.

"By an accurate account kept of every day's labour performed by the inmates of the hospital it has been found, that five thousand seven hundred and thirty-two days' work have been done (in the course of the year) by males, and nine thousand five hundred and fifty-two by females. These are full days' work performed by the patients in the various departments of labour connected with the establishment. Besides this, there is a great amount of light labour performed by patients in and about the wards, dormitories, and dining-rooms, which cannot be taken into the account, because it is engaged in only at short intervals. Many of the females make and repair their own clothing, and also a part of the clothing worn by their children at home.

"In this connection it may be proper to add, that by some alterations now going on in the buildings of the hospital, we hope soon to open three large, light and cheerful rooms, as work-rooms for females, and by changing the occupation of a detached building, to fit up for the males, in addition to our present carpenter's and joiner's shop, two large and convenient rooms, in which the various kinds of labour suited to the capacity of the patients may be performed."

Dr. Bemis enters into a discussion of the causes of insanity, as presented in the table included in his report. Concurring, as we do, in most of the opinions or views therein contained, and believing that a necessity still exists for a wider distribution of them among the members of the medical profession, we proceed to make a somewhat liberal extract.

"There is hardly an assigned cause contained in the table, moral or physical, which may not induce in other persons chorea, epilepsy, convulsions, or paralysis. It is necessary, therefore, in attempting to investigate the diversified causes of insanity, to divest the mind of any previous ideas which might bias the judgment, and attend closely to the facts which have been recorded by intelligent observers, and which, if in themselves imperfect, giving only a partial light, are much better than any preconceived notions or theoretical speculations. By so doing we may hope eventually to arrive at some more satisfactory conclusion regarding the nature and cause of mental disease, and thus be able to exercise some control over the conditions which produce so great an evil.

"Fifty-nine patients have been admitted in the course of the year, who, for a considerable period of time previous to the development of mental disease, had been afflicted with ill health in some of its many forms. There can be no doubt that in nearly every case of insanity the attack is preceded by a bad state of the physical health. In short, that insanity is a disease of debility, not of strength, and that it generally arises from defective nutrition, transmitted weakness, or physical depression produced by personal privation or suffering. Insanity is

never a spiritual malady, a disease of the soul, a sickness of the immaterial principle; but the perverted action of the mind resulting from a defect in its material instrument. Whatever disturbs the general health, whatever weakens the bodily powers, disturbs and deranges the healthy operations of the mind. Whatever strengthens the body does much towards restoring the integrity of the mental faculties. The mind under all conditions partakes of the health of the body, and is depressed, irritated, and morose, or calm, clear, and cheerful, according as the body is well fed, properly clothed, and thoroughly exercised. * * *

"Among the many physical causes of mental disease, perhaps none is more frequent and certainly none oftener overlooked than a disordered state of the stomach and bowels. It is that condition of the alimentary canal which gives rise to constipation, sometimes alternating with diarrhœa, and accompanied with indigestion, flatulence and eructations, anorexia and nausea, transient pains in the hypochondria, livid and yellow suffusions of the skin, viscid secretions of the mouth, and extremely offensive breath. This condition of the alimentary canal which so often lays the foundation for mental disorders is the result of a great variety of causes. Perhaps the most frequent is excess in the use of indigestible food. Too great indulgence of the appetite on the one hand, scanty and unwholesome diet on the other, produce nearly the same train of symptoms, and indicate a very common condition in those cases in which disorders of the mind follow affections of the stomach and bowels.

"The relation in which complaints of the alimentary canal stand to the disease of the brain may sometimes be doubtful; in some it is the relation of cause, in others it may be that of effect. But even then there is a reaction of the secondary upon the primary disease, and the original is aggravated by the complication.

"All must understand how readily the brain is influenced by every condition of the alimentary canal. That general uneasiness and dissatisfaction which troubles so many persons so often; that state of the mind in which nothing in the affairs of life gives pleasure, or hope; that quality of the affections which rejects all the attentions of friendship, all the kind offices of love—is frequently nothing more than the result of sympathy between the brain and a constipated state of the bowels. It is humiliating to admit that cheerfulness, good humour, and large anticipations of future welfare, may be wholly destroyed by a fit of indigestion: that the strength of the memory may be diminished, the imagination blunted, the power of concentration impaired, by a neglected state of the alimentary canal.

"No class of patients suffer more seriously than those who are afflicted with this general disorder of the digestive organs. The deranged state of the thinking faculties, the sense of weariness and oppression, at first slight and irregular, and hardly noticed, becomes daily more severe and oppressive, until the power of self-control is lost, and by the influence of disease, or it may be by accident, some one sensation or emotion becomes exalted, and the judgment impaired; a general and constant irritability of the mind succeeds, which disturbs and deranges all the mental operations. It is hardly to be supposed that any one cause of insanity is more common than this neglected condition of the stomach and bowels. Its effects are so slight and irregular at first as not to arrest the attention of the patient, and thus known to the physician only in the advanced stages of the disorder when the prospect of recovery has become slight, and palliative treatment only can be attempted."

5. At the *Hartford Retreat for the Insane*, for the year terminating with the close of March, 1861, the numbers which we usually extract from the reports, were as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	109	118	227
Admitted in the course of the year	66	98	164
Whole number	175	216	391
Discharged, including deaths	66	99	165
Remaining at the end of the year	109	117	226
Of those discharged, there were cured	28	47	75
Died	5	4	9

Causes of death.—Exhaustion, 3; paralysis, 3; "disease of the lungs," 1; consumption, 1; general debility, 1.

The number of recoveries was larger, and the proportion of deaths smaller than in any preceding twelvemonth of the last twenty years.

"Our Amusement Hall" gives us such new and increased facilities for all sorts of social gatherings, that they have, of course, been more numerous and effective than we could formerly make them. As often as once or twice a week, during the winter, our hall has been filled with an amused, interested and attentive audience, either joining in our dancing parties, or listening to lectures, concerts, Ethiopian minstrels, private theatricals, &c. These hours thus spent have most clearly demonstrated the power of cheerfulness as a remedy, and that laughter oftentimes doeth good like a medicine."

"The introduction of gas has proved, at least in the estimation of our inmates, the most acceptable of our improvements."

A large part of Dr. Butler's report is devoted to an account of an effort made in the course of the year to raise, by voluntary subscription, a fund of twelve thousand dollars, to be appropriated to such improvements of the establishment as will render the system of moral treatment more nearly perfect, and consequently more effective. The special objects were, the erection of a conservatory, a bowling-alley, with calisthenic exercises for the females, and a museum and reading-room for the males; the laying out and decoration of the grounds, and the purchase of books and musical instruments. At the date of the report, the sum subscribed for these purposes was \$11,222.

6. The *Bloomington Asylum for the Insane*, being among the first few establishments erected for its purpose in the United States, was not, in either its general plan nor the details of its internal architectural arrangements, so well adapted to the treatment of persons suffering from mental disorder, as are most of the hospitals of more recent construction. It consisted of three separate buildings: its facilities for classification were but small; it had no room properly designed for gatherings of the patients for lectures or religious worship. These defects were in part remedied by additions to two of the buildings, some five or six years ago, and a further amelioration has now been effected by the union of the main edifice with the detached building for females. This union was made by the erection of an intervening wing, 110 feet in length, and 42 feet in width. It contains commodious rooms for patients, "a diversion-room and lecture-room," infirmaries, bath-rooms, &c.

	Men.	Women.	Total.
Patients in the asylum, January 1, 1860	68	84	152
Admitted in course of the year	75	75	150
Whole number	143	159	302
Discharged, including deaths, ...	72	75	147
Remaining, December 31, 1860	71	84	155
Of those discharged, there were cured	26	24	50
Died	15	14	29

Forty-six patients were discharged as "improved;" and of these, it is said "thirteen are known to have subsequently recovered."

Causes of death.—"Acute mania with intense excitement," 9; pulmonary consumption and marasmus," 6; apoplexy, 3; chronic diarrhœa, 3; suicide, 2; disease of the heart, 2; general paralysis, 2; chronic disease of the brain, attended by partial paralysis, 1; old age and exhaustion, 1.

"Among the patients admitted," says Dr. Brown, "acute physical disease has been more frequent and more severe than during many previous years, and the deaths have been proportionally more numerous. Ten patients died within a fortnight after admission."

7. The general statistics of the *New York City Lunatic Asylum*, for the year 1860, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	287	424	711
Admitted in the course of the year	161	240	401
Whole number	448	664	1112
Discharged, including deaths	147	211	358
Remaining at the end of the year	301	453	754
Of those discharged, there were cured			149
Died	56	62	118

Causes of death.—Consumption, 43; *paralysie générale*, 11; chronic diarrhœa, 11; epilepsy, 9; congestion of the brain, 6; typhomania, 5; exhaustion from mania, 5; apoplexy, 4; old age, 4; paralysis, 3; “submersion,” 2; hæmoptysis, abscess of the kidneys, peritonitis, cancer of the breast, cerebral tumour, encysted dropsy of ovary, serous apoplexy, typhus fever, diarrhœa, fatty degeneration of the heart, meningitis, congestion of the lungs, pneumonia, ulceration of the stomach, and hydrocephalus, 1 each.

“No epidemic has prevailed, but this large mortality has resulted mostly from chronic diseases, which existed at the time of admission.”

No less than *ninety-four* of the patients received came from other public or charitable institutions in the city. These, as a class, are unfavourable cases, and it is stated that only *six per cent.* of them recovered.

We make the subjoined extract from Dr. Ranney's remarks upon moral treatment:—

“In an asylum with so large a number of patients much talent exists, and it becomes the duty of the superintendent to develop and make it available. Some of the dramatic performances were attended, not only by the patients, but by parties residing in the city, who took an interest in their welfare. In one instance the comedy was written by an inmate of the asylum, and several young gentlemen, from the other institutions, assisted in representing it on the stage. As a literary production it possessed much merit, and its representation was highly creditable. Any such means, calculated to engage the attention, has generally a favourable effect. I believe, however, that the cultivation of a social spirit, true sympathy, and good feeling, between officers, attendants, and patients, is of more value than anything else. So long as mind exists, the faculties are not obliterated; and although many be greatly impaired, others may exhibit unusual activity. The intellectual faculties may be much enfeebled, and yet the emotions, the desires, the affections, the idea of right remain intact.”

A large part of this report is devoted to subjects devoid of interest from a medical point of view.

8. The *King's County (N. Y.) Lunatic Asylum* has become a large establishment, as will be perceived by the record of its patients for the fiscal year ending on the 31st of July, 1861.

	Men.	Women.	Total.
Patients at the beginning of the year	126	182	308
Admitted in course of the year	94	96	190
Whole number	220	278	498
Discharged, including deaths	83	85	168
Remaining at the end of the year	137	193	330
Of those discharged, there were cured	31	39	70
Died	25	20	45

Died from general paralysis, 9; phthisis, 7; exhaustion, 5; diarrhœa, 5; dysentery, 4; congestion of the brain, 3; epilepsy, 3; erysipelas, 2; dropsy, 2; paralysis, 2; hypertrophy of the heart, anæmia, and old age, 1 each.

Of the 330 patients remaining in the asylum at the end of the year, 237 were foreigners, and only 93 natives of the United States.

Dr. Chapin's report is almost exclusively devoted to a description of the asylum buildings, which, although begun in the autumn of 1853, were not wholly completed until the year last past.

“The edifice comprises a centre building and four wings, and presents a front

of four hundred and fifty feet. The wings are each composed of an extension and a transverse portion or transept; the transept is eighty-six feet deep, and forms considerable projections in front and rear of the extensions, which are thirty-eight feet wide. The centre building and the four transepts are five stories, and the connecting extensions are four stories high, including the basements.

"The buildings are constructed of brick, with brown-stone water-table, window caps and sills, and are roofed with tin. A heavy cornice of galvanized iron, ornamented with square dentils of the same material, painted in imitation of brown-stone, surrounds the entire structure and contributes much to the architectural effect. A large dome surmounts the centre building, and upon each of the four transepts there is a handsome cupola. * * * * * To guard against the possible spread of fire, double-plated iron doors have been hung over all the doorways connecting the wings with the centre and the outer with the inner wings; and the better to insure the escape of all the patients in the event of such a calamity—which latterly has not been unfrequent in institutions of this kind—extra stairways have been built in the new wings since they were completed."

The buildings are warmed by steam.

9. In the report of the *New York State Lunatic Asylum*, for the year ending November 30, 1860, we find the numbers which we are accustomed to extract to be as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	271	245	519
Admitted in course of the year	185	152	337
Whole number	459	397	856
Discharged, including deaths	177	162	339
Remaining at the end of the year	282	235	517
Of those discharged, there were cured	52	53	105
Died	27	15	42

Causes of death.—Phthisis pulmonalis, 9; exhaustion from mental disease, 9; general paralysis, 9; paralysis, 6; suicide, 3; general debility, pleuro-pneumonia, erysipelas, apoplexy, congestion of the brain, and old age, 1 each.

The nine patients who died of general paralysis—the *paralytic générale* of the French writers upon insanity—were all men. One-third of the fatality in the male department was from this disease. From 1849, when the disease was first recognized in this asylum, to 1860, inclusive, the whole number of patients with this form of mental disorder who have been under treatment is 54. Forty-six of them have died.

Of the 337 admitted, 25 were received for the second, 10 for the third, 6 for the fourth, and 1 for the fifth time.

A large part of the report is occupied by special descriptions of the cases which terminated fatally in the course of the year.

In regard to the mental condition induced by alcoholic drinks, Dr. Gray differs in opinion from Dr. Harlow, of the Maine Insane Hospital, a portion of whose remarks we have already quoted. As it is our intention, in these notices, fairly to represent the views of each author of a report, and, where a diversity upon any subject exists, honestly to exhibit that diversity, rather than by a discriminating selection and suppression, to give especial prominence to such as coincide with our own, we extract at length the remarks of Dr. Gray upon the subject mentioned—

"The moral perversion under which many persons labour who are given up to inebriety, persuades some to look upon it as a form of insanity, rather than a vicious habit. The change of character often manifest; the periodic abandonment to excessive drinking, till reaching a full debauch; the penitence and promises afterwards; the craftiness in stealing away from friends at these periods of self-indulgence; the ultimate loss of self-respect in some, and disregard of the duties and responsibilities of life in all; the maintaining of an *irresistible impulse* to drink to complete gratification, and when arrested in the midst of a debauch, to return and complete it; all these are, by some, placed

to the credit of mental disease, and the destructive vice of intemperance is thus sheltered, and in some sense excused. Unfortunately, not only in the medical profession, but in the pulpit we have advocates for the recognition of this vice, in some of its phases, as belonging to the catalogue of "forms of insanity." Oinomania (an irresistible impulse to drink to drunkenness, in disregard of consequences or character) is the respectable name under which this vice would seek refuge from moral responsibility, and claim the sympathy and indulgence of society, in the gratification of an excessive appetite, self-induced. Some give way to these "paroxysms" of drinking, or, more properly speaking, debauches, maintaining that appetite becomes too powerful for resistance. Others, under some slight trouble, because somebody has slighted or wounded, or wronged them; or because they have, in some way, been disappointed; or because the world, or society around them, have failed to appreciate them; or, because they have become wearied or disgusted with the constantly perplexing duties and cares of life.

"We look upon one and all of these cases, as the voluntary abandonment of self to appetite, as progressive drunkenness, producing what might well be anticipated from vicious self-indulgence, namely, the loss of self-control, and the gradual, but sure degradation, and final demoralization of the individual.

"That intemperance may and does impair the mental faculties, no one can doubt. That it may and does produce insanity, is equally certain. That it is itself a form of insanity, under the name of oinomania, is not established, and the admission of such an error would be too fatal to morals to encourage for an instant.

"If an irresistible impulse to self-indulgence, disregard of the consequences flowing from such indulgence, and general demoralization, were the characteristics of insanity, intemperance might found some shadow of claim to be recognized as a form of the disease. On the contrary, insanity is more generally an immolation of self. An irresistible tendency exists to thoughts, feelings, and actions, at variance with the demands of appetite, and a course of life anything but promotive of self-gratification. In insanity there is but an apparent and temporary demoralization, induced by a beclouding of the mind in its knowledge of the relations of things, and a consequent loss, more or less complete, of the abstract ideas of right and wrong. In insanity, the irresistible tendency has a motive, or a purpose in view, above the simple gratification of appetite; and here disregard of consequences is the result of an absorbing active delirium, or a conviction that the wrong is, under the circumstances, the right.

"In these remarks, we do not intend to withdraw sympathy from the unfortunates who have fallen under intemperance, but merely to disavow the theory that it is a form of insanity, and to protest against receiving its victims into institutions of this character."

Whole number of admissions, from Jan'y 16, 1843		6,165
Discharged, recovered		2,445
Died		713
Not insane		45

Dr. Gray exhibits the incompleteness of hospital provision for the insane of the State of New York, and condemns the disposition to make the county poor-houses, and similar receptacles, a substitute for properly organized special institutions.

P. E.

ART. XVI.—*The Principles and Practice of Obstetrics.* By GUNNING S. BEDFORD, A. M., M. D., Professor of Obstetrics, the Diseases of Women and Children, and Clinical Obstetrics, in the University of New York; author of "Clinical Lectures on the Diseases of Women and Children." Illustrated by four coloured lithographic plates, and ninety-nine wood engravings. 8vo. pp. 731. S. S. & W. Wood: New York, 1861.

A CAREFUL examination of the work of Dr. Bedford has convinced us that it is destined to find favour with both the student and practitioner of obstetrics. We shall not stop to inquire whether a new treatise of the kind was or was not demanded. The question is one with which we have nothing to do. We receive the present addition to our professional library with thankfulness, and the hope that it may secure the patronage to which it is justly entitled. It is unquestionably a faithful exponent of the principles and practice of midwifery in all their several relations, which it will be found to have brought up very fully to the existing state of our knowledge. In its pages are embodied, not merely the clinical observations and practical deductions of the author, but the established views and well-confirmed experience in reference to the several subjects embraced in it, set forth in the writings of the best obstetrical authorities, as well of the present as of former periods, of our own as of other countries.

Systematic in its arrangement, and clear and explicit in all its teachings, it appears to be, at the same time, full in all that is requisite to communicate a correct view of the anatomy and physiology of the female pelvis and organs of generation—the physiology of reproduction;—the signs, concomitants, and pathology of pregnancy;—the physiology of the fœtus; its relations with the pelvis; the causes and consequences of its premature expulsion from the uterus; all that is required to develop the phenomena of parturition in their various phases—whether as presented in the commencement, course, and completion of natural labour, of labour complicated by a plurality of fœtuses, displacement of the uterus, convulsions, etc., or of preternatural labour—labour requiring for its completion manual or instrumental assistance. Equally satisfactory is the author's treatment of whatever relates to the management of the several forms of labour, and of the more important diseases of the puerperal state.

The effort of Dr. Bedford, in all his practical teachings, has evidently been directed to enable his readers to form a just estimate of the powers of nature for the accomplishment of delivery in each case of labour, with entire safety to both mother and child: to the end that, on the one hand, there may be no unnecessary delay in resorting to manual or instrumental assistance when this becomes absolutely necessary, nor, on the other, a reckless interference, in any form or manner, when parturition is proceeding naturally and regularly towards a favourable termination.

The views set forth in the chapters which treat of embryotomy, the Cæsarean section, and the induction of premature labour, may be consulted by the student and practitioner of obstetrics with profit. We believe that a candid examination of the facts upon record in reference to the subject, will bear out fully the truth of the position assumed by Dr. Bedford that, "if the child be alive, the woman at the completion of her pregnancy, and it be made manifest that the maternal passages are so contracted as to render it physically impossible that a living child can be extracted *per vias naturales*, he should, between the two resources—craniotomy and the Cæsarean section—not hesitate to decide in favour of the latter."

In cases, however, where we are well convinced, from the very inception of pregnancy, that a live child cannot be born at the full term, and that, to afford a chance of safety to the mother, our only choice is between a resort to embryotomy or the Cæsarean section, we have, in the induction, at the proper period and by proper means, of premature labour, a procedure through which, as is shown by well-authenticated statistics, "considerably more than one-half of the children are rescued, with the insignificant mortality of one in fifty of the mothers."

The question as to the propriety of the induction of premature labour, in cases of excessive vomiting during pregnancy, involving the life of the mother, is mooted by Dr. Bedford. Although he does not answer it definitely, either affirmatively or negatively, believing it to be one of sound judgment rather than of controversy, and to be determined by "a searching review of all the surrounding circumstances of each individual case," yet he evidently believes that a resort to it is justifiable in order to save the lives of both mother and child in certain cases of uncontrollable vomiting occurring in the pregnant female. To dispute the possibility of the occurrence of such cases would be folly: we can only say that, in a practice of forty-five years, we have never met with any such.

The subject of abortion—its causes, phenomena, and management—is treated of at great length, and with uncommon ability.

We would direct attention to the chapters on puerperal fever, puerperal convulsions, and puerperal mania. In these, Dr. Bedford has succeeded in presenting, with great conciseness, correct views in respect to the pathology of the affections referred to, and a fair exposition of the most judicious therapeutical plan for their treatment.

We cannot compliment the author upon the excellency of his pictorial illustrations. Coarser specimens of wood engraving than those the work before us presents our eyes have seldom encountered; while the four coloured lithographic plates fall sadly behind those of Montgomery, from which they profess to be copied. The mechanical execution of the work, in other respects, is unexceptionable.

D. F. C.

ART. XVII.—*Placenta Prævia; its History and Treatment.* By WILLIAM READ, M. D., etc. etc. 8vo. pp. 340. Philadelphia, 1861: J. B. Lippincott & Co.

DR. READ has here furnished us with a most interesting book, on a most important subject. A case of labour can but seldom present itself in which promptitude of action in the right direction is more essential to insure the safety of mother and child than one complicated with placenta prævia. There is no case in which is so imperatively demanded, on the part of the accoucheur, the complete exercise of all his faculties, united to perfect coolness, and sobriety of judgment. Error here admits of no rectification; there is no time to undo what has been done wrong, while a single false step may place the patient beyond the power of rescue.

For a long time it was believed that the proper treatment of placenta prævia was fully settled, until about seventeen years ago Professor Simpson advocated the plan of artificially detaching the placenta, as the rule of practice under certain limitations. The promulgation of this new plan gave rise to not a little controversy among obstetricians, and even at the present time there is much difference of opinion as to the extent of its applicability, and its actual value in comparison with that previously pursued.

The question in respect to the treatment of placenta prævia is still an open one. To determine whether the long-established practice of speedily terminating the labour by a resort to version by the feet, or the more recent proposition of an artificial detachment of the placenta, with no further manual interference is best adapted to preserve in the larger number of instances the life of the mother and of her child.

The question requires a more extended basis of statistical evidence—the result of a careful analysis and collation of a sufficiently extended series of well-attested cases, of which we have a full and accurate history.

To present such statistics is the object of Dr. Read in the work before us. He has, with no common amount of industry and research, collected over *one thousand cases* of placenta prævia. All the particulars in respect to the great majority of which he assures us have been obtained from the original reports. These cases he has arranged in a tabular form. The first eight tables embrace 891 cases quoted from the original histories, and four other tables, which follow

as an appendix, embrace 114 cases, obtained at second hand. Presenting a total of 1005 cases.

Table 1, of the first series, exhibits the results of 52 cases in which the placenta was spontaneously expelled, and the child born by the unassisted uterine contractions. All these cases are set down as having terminated favourably in respect to the mother; in only 11 was the child born alive. The presentation of the placenta was complete in 11 cases, partial in 7. In 14 cases the head of the child presented; in 3 the head and arm; in 2 the back; the feet and the abdomen each in one case, and in one case the funis, with both arms and one leg.

From the facts presented by this table it is shown that the death of the child does not necessarily result when the placenta is first thrown off.

Table 2 exhibits the results of 26 cases of spontaneous separation of the placenta, with artificial delivery of the child, in consequence of the inefficiency of the pains. Twenty-one of these cases terminated favourably in respect to the mother. The fate of the child is noticed in only 19 cases, in 2 only are the children reported as having lived. Both these were delivered by turning, and immediately after the expulsion of the placenta. In one the shoulder presented, in the other the presentation is not stated. In 17 cases in which the children are reported as having died, 10 were delivered by turning, 5 were mutilated, and 2 drawn down by the presenting feet. The presentation of the placenta is noticed in one instance only—when it was partial. In 3 cases the child's head presented; in 8 its arm, in one of these with the cord; in 3 its shoulder, in two of these with the cord also; in 2 its foot; in 1 its elbow; in 1 its umbilicus; and in 1 its knee, with cord first, then its breech.

Table 3 exhibits the results of 31 cases, in which the placenta was artificially separated, and the child delivered by the natural pains. Twenty-eight of these terminated favourably for the mothers. The children were born living in three instances, all of which were presentations of the head alone. The presentation of the placenta was complete in 16 cases, partial in 7 cases. The child presented by the head in 23 cases—in 3 of these with prolapse of cord; by head and arm in 1 case; by head and hand in 1 case; by the feet in 2; and by the breech in 1.

Table 4 presents the results of 51 cases in which both placenta and child were artificially delivered. In 40 of these the mothers survived, but the children in only 9 cases. The presentation of the placenta is recorded in 31 cases—in 25 of which it was complete, and in 6 partial. In only 29 cases is the presentation of the child given. It presented by the head in 14 cases; by the head and arm in 1; by the arm in 7; by the arm and cord in 1; by the shoulder in 2; by the breech in 1; by the feet in 2; and in 1 the presentation was of the funis. There were 39 cases of turning; 6 of craniotomy; 4 of forceps; and *two* of delivery by hand. The result to the mother was in the cases of turning 31 recoveries to 8 deaths; in those in which the forceps were employed, there were 2 recoveries and two deaths; in those in which craniotomy was performed, there were 5 recoveries and *one* death; in those where the delivery was by the hand simply, there were 2 recoveries and *no deaths*.

Table 5 presents the results of 123 cases in which the placenta was partially detached, followed by the spontaneous delivery of the child. The mothers, in 109 of these cases, recovered. In 111 cases in which the result to the child is given, 56 are reported to have lived. The presentation of the placenta was complete, or nearly so, in 18 cases; partial in 72; a large portion of it protruding through the os in 3; and nearly detached in *one*. The child presented in 76 instances by its head, in 6 by its breech, and by its feet in 4. In 37 cases, the presentation is not given.

Table 6 presents the results of 557 cases in which, with partial detachment of the placenta, the artificial delivery of the child was found to be necessary. In 416 of these cases the mother recovered. In 223 cases, the children are stated to have been born alive, and dead in 246 cases; leaving 88 cases in which the result in respect to the children is not recorded. In 310 of the cases only is the presentation of the placenta given; *viz.*, 193 in which it was complete, and 117 in which it was partial. The head of the child presented in 109 cases—in 6 of these with the cord, in 1 with the hand; the feet presented in 13 cases; the arm

in 6; the breech in 7; the shoulder in 5, in one case, with prolapse of the cord; the knee in one case; the foot and knee in one; foot and cord in one; right hip in one; umbilicus in one; and in one case the child presented transversely. In 410 cases, the presentation is not given.

Table 7 presents the results of 39 cases in which the placenta was perforated, and the child variously delivered. In 29 of these cases, the mother survived. Twelve of the children are reported to have lived, and 20 to have died. In 7 of the cases, the result in respect to the children is not stated. The presentation of the placenta is stated to have been, in 25 cases, complete, or very nearly so. The child presented by the head 16 times, and by the foot and hand or arm twice. In 21 cases, the presentation is not stated. Delivery was effected by turning in 28 cases; by the efforts of nature in 7; craniotomy was performed in one case; forceps were used in one case; and the child was drawn down by the feet in two cases. Of the mothers who died, all were delivered by turning, with one exception—the case in which craniotomy was performed.

Table 8 presents the particulars of 32 cases in which the mother died undelivered. Although, as Dr. R. remarks, these cases have no weight in determining the relative value of the different modes of treatment, they are, nevertheless, important in determining the fatality of placenta prævia. The presentation was, in 20 of these cases complete, in 2 partial. The particular extent of its presentation is not noted in 10 cases. The presentation of the child is recorded in only 7 cases; in 6 of these it was the head, in 1 the breech.

Previously to entering upon the statistics of placenta prævia, Dr. R., after presenting a very complete sketch of the literature of the accident from the earliest period of medical history up to the year 1776, when Leroux de Dijon, in his work on the hemorrhages incident to parturient females, first pointed out the true character of the loss of blood attendant upon cases with placental presentation, and indicated the tampon as the best and most certain means for its arrest. Dr. R. discusses the frequency of the occurrence of the accident—so far, at least, as we may be permitted to draw any conclusions in this respect from the facts in our possession; its diagnosis; its physiology—involving, of course, the physiology of the placenta; and the special causes of the hemorrhage which takes place in this accident so soon as the term of gestation draws towards a close and the process of labor sets in. Each of these points is discussed with a fulness commensurate with its importance and the extent and character of our acquaintance with it. The four chapters of the treatise devoted to the consideration of the topics just indicated, are replete with interest; they exhibit throughout, in a very favourable light, the capacity of the author for the faithful investigation of the questions at issue in respect to the several subjects of which he treats, and his entire familiarity with the contributions towards their elucidation that have been placed on record at different periods and by different authorities.

This portion of the work forms an almost essential introduction to the analysis and collation of the cases collected by Dr. R. Although in respect to all that concerns the progress and results of placenta prævia, and to the treatment best calculated, when it is present, to save the life of both mother and child, it is scarcely possible to arrive at a safe and certain decision, excepting from ample clinical experience; still, a clear understanding, of the nature of the utero-placental connection, and the cause of the hemorrhage which results during labour, when the placenta is implanted at or over the os uteri, is all important to enable us to employ understandingly whatever facts are supplied us for the solution of the momentous question, What is to be the conduct of the obstetrician when he meets with a case of placental presentation?

We present entire the general summary of the results which Dr. R. has deduced from the analysis of the cases of placenta prævia collected by him.

In introducing this summary he remarks that of all the cases he has tabulated six hundred and seventy, or more than two-thirds, come under the denomination of "partial presentation," showing, most conclusively, that the method proposed by Prof. Simpson, will be available in only a small fraction of cases, and that the old practice of turning and delivering by the feet, without disturbing the connections of the placenta any more than is necessary for the purpose, must,

after all, be our main resort—and the method which in the mass of cases coming under charge, will most likely be required.

The following are the general conclusions at which Dr. R. has arrived from the data accumulated by him:—

"1st. The danger to the mother in *placenta prævia* *increases* as the period at which the labour comes on approaches the full term. A result rather to be expected from the increased capacity of the uterine vessels, as pregnancy advances to its termination. It is, therefore, better to terminate the labour, after it has really begun, as soon as compatible with the safety of the patient, than to endeavour to conduct the pregnancy to the full term.

"2d. The danger to the mother is less when the os uteri is completely covered, than when a portion only is involved in the attachment of the placenta, and least of all, where the attachment becomes nearly or quite central with reference to the os. Under these last conditions there is a strong probability, if the contractions are vigorous enough, that the placenta will be thrown off, and expelled into the vagina, and the hemorrhage be checked.

"3d. The *condition* of the mother is a much more important element in making a prognosis of the case, than the amount of blood lost; some constitutions being very much less susceptible to the effect of depletion, and capable of sustaining a greater amount of hemorrhage without being unfavourably affected, than others. The condition of the mother, then, should be most carefully watched, and the appearance of any symptoms indicating debility, or a tendency to collapse, should be the signal for the adoption of such remedies, or such a course as will the most speedily and safely insure the delivery of the child. And they should be put into effect without any delay, always bearing in mind the fact, that operations which are perfectly safe for the mother, when her vital power is comparatively unimpaired, becomes almost certainly fatal, if performed when she has become exhausted by hemorrhage and suffering.

"4th. In those cases where the pains are vigorous, and show a disposition to be permanent—the head presenting, the os in good condition, and the strength not materially impaired—*rupturing the membranes*, by letting off the waters, and bringing the child's head down upon the os, will, in most instances, be enough to check the bleeding, and place the mother in a safe condition. When, however, a want of tonic power is manifested, or it is probable that resort must be had to forced delivery, the discharge of the waters in this way will only increase the difficulty of the operation, and the danger to the mother.

"5th. The danger to the mother is materially increased by artificial delivery. But the same statistics which show this result, also make it evident that this increased fatality is owing, *not so much to the operation itself*, as to the enfeebled and exhausted condition of the mother at the time; and that, with a favourable condition on the part of the mother, there is no more danger in resorting to it in *placenta prævia*, than in ordinary cases of difficult labour.

"6th. The effect of artificial delivery to endanger the life of the mother in *placenta prævia*, being, therefore, almost directly proportionate to the degree of exhaustion under which she labours, it should be the aim of the practitioner to perform this operation, before such a state is reached; always bearing in mind the remark of Dr. Churchill, that, 'it is peculiar to midwifery operations that they form an ascending series, increasing in gravity from the simplest to the most severe—no two being equal, and therefore, in considering the suitability or practicability of any one, we do so with the knowledge that if the one we prefer do not succeed, we must have recourse to another more severe and more dangerous.'

"7th. If, from the progress of the case, or the conditions of the labour, a resort to artificial delivery must be finally had, it should not be delayed an instant beyond the time when the dilatation, or dilatability of the os uteri permits the introduction of the hand into the uterus. The danger to the mother from forced delivery being directly proportionate to the degree of exhaustion under which she labours.

"8th. When from the rapidly failing condition of the mother, or the presence of any cause rendering artificial delivery impossible, a resort to the foregoing is forbidden, the placenta should be wholly separated from the uterus, and such

remedies made use of (as one of which our attention is directed to transfusion) as will recruit the strength of the mother, until reaction having been established, she can be delivered in whatever way may be deemed best.

"9th. The tampon may be used advantageously in all those cases where, with an amount of flooding, sufficient to affect materially the constitution of the mother, the os uteri remains so rigid that it is impossible to perform artificial delivery. But, while under these circumstances, it is important to gain time for the dilatation of the os, and at the same time prevent the hemorrhage from too speedily exhausting the mother; under an opposite state of things a resort to the tampon, by inducing this temporizing policy, will often cause a loss of valuable time, and in this way make just the difference between a safe and a fatal issue. As the effect of this application is not only to check the hemorrhage, but also to excite labour-pains and dilatation of the os uteri, it is totally forbidden, in all cases where either or both of these results may not be desired.

"10th. The effect of ergot being of a twofold nature, according to the condition of the system—ecbolic, or parturient when the nervous energy is undiminished, and stimulant when there is a want of this—it should not be administered, when there is a probable necessity of terminating the labour by an operation, unless at such an interval, that the effect of it is either exhausted, or will not come on until after the operation is finished, or the condition of the mother is such that it will act merely as a stimulant.

"11th. In all cases where the exhaustion is excessive, and version is the only alternative, after the feet have been brought down, the body of the child should be left undelivered, until the uterus has been roused to contract, and a firm condensation of its walls has been secured; or, at least, the body should be withdrawn so slowly as to prevent the evil consequences which sometimes follow too sudden delivery."

From a careful study of the foregoing tables, which present, confessedly, the best authenticated and most extended series of statistics in reference to the subject of placenta prævia that have been as yet compiled, it will be found that the largest amount of safety is afforded to both mother and child, in cases of placental presentation, by an early and complete separation of the placenta, while the completion of the labour is trusted, in every case where it is possible, to the natural efforts of the uterus. The tables exhibit, also, in the strongest point of view the extreme danger to the mother attendant upon the former practice of breaking through the placenta, or even detaching it at one of its edges, for the purpose of reaching the feet of the child to bring these down and thus effect its delivery.

In the July (1861) number of the *Glasgow Medical Journal*, there is a communication from Dr. Chas. Clay, of Manchester, late Senior Medical Officer of St. Mary's Hospital of that place, and Lecturer on Midwifery and Diseases of Women and Children, on the subject of placenta prævia. Presenting as it does the result of a long and extensive experience in obstetrics, the communication becomes, in this respect alone, one of very considerable interest and importance—an interest and importance which are augmented by the confirmation the observations of its author affords to the general conclusions deducible from the ample statistics collected and arranged by Dr. Read.

"In cases of placenta prævia," Dr. Clay remarks, "repeated examinations cannot be too severely condemned. The one examination to ascertain the facts of the case should, if possible, be followed by prompt and energetic means to check the hemorrhage by detachment, and thus facilitate subsequent delivery by the efforts of nature only. If the hemorrhage ceases on the detachment of the placenta, the delivery may with great propriety be waited for, and without danger. I have scarcely known an instance to the contrary. In reference to the old plan of version and immediate delivery, for which the detachment of the placenta is proposed as a substitute, there is in the first place the heavy rate of mortality of 1 in 3 to the mother and 1 in 2 to the child, increased considerably if those cases are treated separately. Where the turning and delivery are effected when the dilatation of the os uteri has only just begun, that is, only to admit the point of one finger, or to within the size of a shilling at most—a rate of mortality would be shown which I do not hesitate to place at near 50 per

cent. to the mother, and almost universally fatal to the child. These figures have to be compared with 1 in 44 to the mother, and 1 in 5 to the child, where the placenta is detached. Secondly, there is the probability of means having been previously tried to check the hemorrhage by rupturing the membranes, or giving ergot, or both; either of which will immensely increase the difficulties and dangers attendant on subsequent version. Thirdly, if the os uteri is but very slightly dilated and not disposed to do so, the violence done by attempting to turn is very serious and the difficulties of version increased. Fourthly, if the hemorrhage occur before the period of utero-gestation is completed (the seventh month for instance), the os is certainly not prepared for *extensive* dilatation, and I do not believe it ought to be subjected to such extreme treatment. Fifthly, the danger of waiting for a sufficient state of dilatation to effect version judiciously (say to the size of half-a-crown, as generally admitted by the best authorities), and the great loss of blood in the interim, when the hemorrhage can be at once checked and the waiting for natural expulsion justified, by the simple process of detachment. Sixthly, in almost all cases the prostration is often so great that even the necessary efforts of version will in very many instances hasten death.

"I am convinced from long experience, that the dangers of version and hemorrhage may in a great measure be done away with by the simple detachment of the placenta. I have never known it to fail, nor do I believe it will ever fail, if the detachment is completely and properly effected. We have also the highest authorities for stating that the arrest of hemorrhage is complete in 19 out of 20. If even then for the sake of argument we admit one failure in twenty cases, the results of detachment would stand immeasurably superior to the old (and I trust soon to add obsolete) system of version and immediate delivery."

"It has been objected," says Dr. C., "to detach at the seventh month, the os not being dilatable; but I have found it as easy dilatable at the seventh as at the ninth month, I mean *so far* as is necessary for detachment only, and therefore believe the objection to be more ideal than real. Then, again, if it be an objection, how much more objectionable must it be to dilate more extensively as in version and delivery, where the violence must of necessity be greater? Others argue that the fœtus may be retained for days after the detachment, and fever may arise, but as no facts have been advanced to confirm such an opinion, it can only be entertained as a mere supposition. I have never seen the fœtus retained, and consequently no case of fever from such a cause has ever come under my notice, and certainly it does not apply to cases of fœtus dead *in utero* from other causes. After all, there is such a remarkable difference in the statistics on these important questions, that I should consider any person reckless indeed of human life, who would advocate turning and delivery in cases of placenta prævia in preference to detaching the placenta, if at all aware of these results. But I think few could be found to go further than either of these doctrines, and advocate forcible dilatation at early periods, or attempt turning with the os only capable of receiving the point of the forefinger, or at most dilated to the size of a shilling; increasing the already too great mortality, and adding greatly to the future difficulties to be contended with."

"In conclusion," Dr. C. observes, "I have never witnessed any bad consequences from detaching the placenta; there is infinitely less violence done, the danger is much reduced, future difficulties are of less importance, and the results far more favourable. And with the accumulated facts of the past forty years, from individuals of the highest standing in the profession, we may safely hope never so far to retrograde as to adopt the old and barbarous system of boring through the placenta, turning, and delivering the child. But even if we should be so far led astray as to accept this old barbarism, let us at least escape the opprobrium of attempting such practices in the earlier stages of dilatation of the os uteri, and *knowingly* increasing all the dangers attendant on such cases."

D. F. C.

ART. XVIII.—*Guy's Hospital Reports.* Edited by SAMUEL WILKS, M. D., and ALFRED POLAND. Third Series, vol. VII. London: John Churchill, 1861. 8vo. pp. 392.

THE present volume of this valuable publication contains seventeen original communications, and seven lithographic plates. As has been for some time past our practice, we shall lay before our readers a full analysis of its contents:—

I. The first article in the number is entitled *The Surgery of the Mouth, Pharynx, Abdomen, and Rectum, including Hernia.* By THOMAS BRYANT. This is the third of a series of articles, being published by Mr. Bryant in the *Reports*, that are intended to illustrate, from cases that have occurred in Guy's Hospital, the surgery of the different regions of the body. In the two preceding articles the clinical surgery of the nervous, respiratory, and circulatory systems was considered.¹

The source from which the material for the present paper is drawn is thus tabulated:—

Diseases.	Cured or relieved.	Died.	Total.
Hare-lip	46	1	47
Cancer of the lip	52	2	54
Affections of the tongue	27	3	30
Affections of the palate, tonsils, and pharynx	44	—	44
Stricture of the œsophagus	14	2	16
Contusions of the abdomen	53	1	54
Ruptured viscera	4	13	17
Strangulated hernia—			
Inguinal	108	26	134
Femoral	103	47	150
Umbilical	13	5	18
Anal abscess and fistula	236	—	236
Hemorrhoids	61	—	61
Stricture of the rectum	45	3	48
Other affections of the rectum	31	—	31
Total	837	103	940

These cases, it may be interesting to know, were admitted into the Hospital from October 1, 1853, to March 30, 1861, or in a period of seven and a half years.

Of the cases of *hare-lip*, only one-half were simple; fissure of the hard and soft palate existing in at least 50 per centum. In all but three an operation was performed, and with a good result, except in four cases. A boy, aged eleven days, died four days after the operation, from which he never rallied; and in three cases, aged respectively four weeks, five weeks, and five months, the parts subsequently separated after operation. In two of these three cases the operation was repeated with success; in the third case, aged five months, a second operation was postponed till the child's health had improved.

From the consideration of these cases, we see the propriety of deferring all operative interference in cases of *hare-lip* until the vital powers of the child have become established, and able to resist a certain tax upon their strength. If, however, the existence of the child should be endangered by inability to suckle, or if, as we have known, it should be regarded by the parents as a repulsive object and purposely neglected, the surgeon ought to endeavour to remedy the deformity without delay.

The period fixed upon by Mr. Bryant as the most favourable for operating is about the third month. This, provided the patient be in good health, is pro-

¹ For an analysis of these articles, see the numbers of the *Journal* for January, 1860, and July, 1861.

bably correct so far as simple cases are concerned; but in those complicated with projection of the intermaxillary bone, or with cleft bony palate, cases in which the operation is attended with dangers and difficulties, we believe ourselves that it should be deferred until the child is fully three years of age.

The plan of operating for the relief of this deformity, described first by Malgaigne, is strongly recommended by Mr. Bryant. It possesses the great advantage of preventing the little notch, left almost constantly at the extremity of the cicatrix, on the free edge of the lip, after the ordinary method of operating. This plan consists simply in paring the edges of the wound from above downwards, leaving the inverted flap adherent at its labial border. The divided lips being brought together above, the lower flaps may be connected by a fine suture, and if they are found to be too long it is easy to curtail them. An important modification of this operation, with which Mr. Bryant cannot be acquainted, or he would certainly have recommended it, has been made by Nélaton, in whose hands we have repeatedly seen it effect a very perfect result. In place of forming two flaps, Nélaton prolongs the incisions beyond the angle of the cleft in the lip where they meet, so that the parts detached from the lip represent the letter V inverted; they are then turned down and form below the lip the same letter V, but in its usual position. In order to perform this operation well the angles of the lip must be hooked by a tenaculum. After the parts are turned down the sides of the lozenge-shaped opening which is left are placed in contact by one suture to prevent the depressed flap from returning to its position. The advantages of this method of operating are very great; a child must suck, and he will cry and rub his lips; all this destroys the dressings placed over the parts, and the sutures ulcerate and become loose. When, however, this operation has been performed, the edges swell and become covered with granulations, and a *natural suture* is formed, and remains even if the others do give way, and exactly at the inferior part of the lip, where it is most needed. Even if primary union does not take place, secondary union does, just as regular, and just as complete.

Under the head of *cancer of the lip*, Mr. Bryant includes all cases of cancer, and of epithelioma or canceroid of the lip. Of the 54 cases, 3 took place in women; and in 52 of the 54 the disease attacked the upper lip. This position of the disease and its attacking only the male sex are totally unintelligible points. If they were understood we might probably know more in regard to its concealed causes. We feel considerable curiosity ourselves as to whether the three women exceptionally affected were in the habit of smoking tobacco in clay pipes. If they were all smokers, the fact of their becoming affected when canceroid of the lip is so very rarely seen in women, would furnish the strongest argument we have yet met with in favour of pipe-smoking being a cause of the affection.

The treatment recommended by Mr. Bryant is that generally adopted by surgeons, namely, early excision, repeated at the earliest reappearance of the disease.

No cases of diseases of the gums, not even of epulis, are given by Mr. Bryant, and in the chapter on *diseases of the tongue*, we find nothing calling for notice unless it be the treatment recommended for sublingual cysts. A moderately free opening is made into the cyst, and its cavity is then freely plugged with lint so as to excite inflammation of its walls.

In *tonsillitis*, in the early stage, gum guaiacum, which he generally prescribes in the ordinary form of the *mistura guaiaci* of the London Pharmacopœia, is said by Mr. Bryant to possess a most marked beneficial influence. In all the cases of *chronic enlargement of the tonsils* excision was performed, and generally with the guillotine.

Of *tumours of the pharynx*, those hard, fibrous growths, from the upper part of the pharynx or the base of the skull, two cases are very briefly related. In one case, he says that these tumours should be removed by ligature passed through the nose by means of a double canula; and in the other, that the tumour "was found to have been malignant." He adds, that though of interest pathologically, but little can be done surgically for their removal. Mr. Bryant, consequently, appears to be unacquainted with the successful operations of Flobert and of Nélaton, and of other French surgeons, for the extirpation of these fibrous growths.

The chapter on *contusions of the abdomen and ruptured viscera*, notwithstanding the importance of the subject, contains nothing calling for particular notice, the chief practical points being the same with those in Mr. Poland's contribution on the same injuries in the 4th vol. of the *Reports*, noticed in the *Journal* for April, 1859.

Though the chapters on *Strangulated Hernia* in Mr. Bryant's paper, do not contain much that is novel to the profession, yet the analysis of the large mass of material in his possession, and the deductions to be drawn from it, cannot fail to prove interesting. As seen in the table, over three hundred cases of strangulated hernia are recorded, a number quite sufficient to yield important conclusions. The use of statistics is an easy and, therefore, a favourite subject of ridicule, but with us no considerations are regarded with greater interest and possess greater weight than those drawn from "registered experience."

According to Mr. Bryant's table of 100 cases of strangulated hernia, 50 are inguinal, 44 femoral, and 6 umbilical. Now, as we know, from the report of the City of London Truss Society, that out of every 100 cases of hernia, 84 are inguinal, 10 femoral, and 5 umbilical (the fraction being divided between the three), femoral hernia must be nearly eight times more subject to strangulation than inguinal.

As regards the relative frequency of the successful application of the taxis and herniotomy in the different forms of strangulated hernia it appears that in every 100 cases of inguinal, 36 require operation, and 63.9 are reduced by the taxis; in every 100 cases of femoral, 73 require operation, and 26.7 are reduced by the taxis; and in every 100 cases of umbilical, 27 are operated upon, and 73 are reduced by the taxis.

The following table illustrates clearly and briefly the various points elucidated by Mr. Bryant's statistics expressed in percentages. It is impossible for any surgeon to consider it with care without perceiving that it brings before him many and important facts:—

FORM OF HERNIA.	Frequency of Occurrence.	Per cent. Strangulated.	REDUCED BY TAXIS.		REDUCED BY HERNIOTOMY.		SAC OPENED.		SAC NOT OPENED.		Mortality of whole number strangulated.
			Per cent.	Mortality.	Per cent.	Mortality.	Per cent.	Mortality.	Per cent.	Mortality.	
Inguinal	84	50	64	3.8	36	52	80	60	20	22	21
" congenital		24	57	0	43	58	84	45	15	0	17
" recent		5.7	28	0	72	100	80	100	20	100	71
" old		70	70	5	30	50	77	60	23	16	19
Femoral	10	44	27	10.5	73	42	56	50	43	30	33
" recent		21	32	0	68	66	38	87	62	54	45
" old		78	25	14	75	36	62	45	38	22	30
Umbilical	5	6	73	10	27	80					27

The deduction made by Mr. Bryant from this table in regard to opening the sac in the operation for the relief of what is called *strangulated hernia* is decidedly unfavourable thereto. According to it, in all cases of inguinal, femoral, or umbilical hernia, recent, old, or congenital, the mortality is less when the sac is not opened; and Mr. Bryant, as a consequence, very justly remarks, "the surgeon is hardly justified in taking an unnecessary step by opening the sac when no benefit but some harm appears to result." He adds also: "It may be a satisfactory thing on the part of the surgeon to know the condition of the hernial contents, but practically such knowledge is of little use; and unless it can be proved that such an inspection is of any value the opening of the sac must be regarded as unnecessary." We shall not stop to attempt to prove the value of inspection of the bowel in suspicious cases, though many surgeons would prefer making sure not to return it in a state of mortification, but call attention to the fact that Mr. Bryant ignores totally anything like stricture at the neck of the sac itself. In no place does he refer to it. Now, undoubtedly, the chief reason for opening the sac is to search for stricture at its neck, for autopsies after

operations have repeatedly shown the intestine strangulated in the sac and by the neck of the sac itself.' Malgaigne, in his celebrated memoir on the subject, denies that strangulation is ever produced by the fibrous orifices through which the sac passes, and, though this may be an extreme opinion, it is not, practically, so dangerous a one as that which ignores totally all strangulation except from these orifices. It is from a want of attention to this fact that Mr. Bryant does not state whether or no the patient has worn a truss, for the pressure of this instrument, as Sharp long ago remarked, by bringing the two sides of the sac almost into contact with one another at that part near the rings of the abdomen, gives rise to a stricture in its entrance or neck. His statistics would have had far greater interest to us had he mentioned this circumstance, for a truss having been worn would tell us at least that the sac had a neck, where the seat of stricture might possibly be.

There is another observation to be made in regard to Mr. Bryant's cases of *strangulation*, which is, that the constriction in all of them was very certainly not very tight. We read, for instance (Case 3, page 50), that on admission the *strangulation* had existed for five days, and yet the intestine was reduced and the man recovered. Now, as a matter of course, there is no *strangulation* in cases like this, for the parts would then have long been perfectly dead. It is, we conceive, highly improper to style such cases cases of strangulation from the influence the name has upon the practice. An affection is styled a *strangulated* hernia, and the surgeon hastens to divide a stricture; if styled *inflamed* hernia, as it really is, he would endeavour to diminish the inflammation by local and general measures, and then when the inflammation shall have subsided, if the hernia be reducible, endeavour to return it to its normal position.

It does not require much reflection to perceive that this question is not merely one of words, nor one of solely pathological interest, but a question that interests most deeply the life of the patient. Statistics show us that the operation for strangulated hernia is one of great fatality, and a correct view of the question before us will spare many men the risk of its dangers.

On the *after-treatment* in cases of so-called strangulated hernia reduced either by the taxis or by operation, Mr. Bryant makes some very useful remarks, in which he points out that the object of the surgeon is unquestionably best carried out by preserving rest of the injured or inflamed parts, and that opium, in moderate doses, is therefore indicated. Respecting purgatives there are few, if any, cases in which they should be employed; so soon as the injury sustained by the bowel is repaired the natural functions of the intestine will return and an evacuation will follow.

For the treatment of *fistula in ano*, Mr. Bryant says that but one operation appears to be of benefit, and that is the division of the sphincter. The injection of the sinus was attempted in a few of the cases, and with no great success. As respects the connection between phthisis and fistula, Mr. Bryant's experience is quite remarkable; for in only three of the cases was there any symptom of pneumonic phthisis, and the majority of the patients presented no more severe cachectic symptoms than exist in any other class of hospital patients.

In 23 out of the 61 cases of hemorrhoids a palliative treatment was sufficient. The patients were kept on low diet in the horizontal position, and a pill of 1 gr. of pil. hydrargyri and 3 grs. of ext. conii was given twice a day, with an oleaginous mixture. In the more severe cases, when the piles were external (in 17 cases) they were excised, when internal they were ligatured or destroyed by the application of nitric acid; the ligature being used when some portion only of the bowel's circumference was involved, and the acid when the disease was more extensive.

The other diseases treated of in Mr. Bryant's paper are *prolapsus*, *painful ulcer*, *polypus*, and *stricture of the rectum*, but we have found nothing to remark in these four chapters except the fact that they are all exceedingly meagre and unsatisfactory.

¹ See Broca "De l'Etranglement dans les Hernies," &c. Paris, 1853, p. 94. This point is particularly dwelt upon by the old English surgeon Sharp, "Critical Inquiry," &c. London, 1750, page 32.

The whole of this paper, like the one preceding it in the series, bears everywhere evidence of haste in its preparation.

II. *Remarks on Kiestine, and its Existence in the Virgin and Sterile States.* By J. BRAXTON HICKS, M.D.

In this paper, after some preliminary observations upon the nature and tests of kiestine, Dr. Hicks brings forward seven cases to show that it may exist in the urine of a person not pregnant, and who never had been. One of them (Case V.) is quite conclusive on the subject. It is as follows:—

“—, healthy young woman, æt. 21: imperforate hymen; retained menses; vagina distended to the utmost, and uterus about the size of a large fist, as far up as umbilicus. Kiestine well marked; no milk in breasts.”

III. *On Syphilitic Blotch of the Conjunctiva.* By JOHN F. FRANCE.

The peculiar manifestation of syphilis described by Mr. France, in this communication, must be exceedingly rare. We have never seen it referred to by writers on the venereal; and Desmarres, in his *Maladies des Yeux*, states, that he has never seen on the oculo-palpebral conjunctiva either *plaques muqueuses*, or, *copper-coloured eruptions*.

The *syphilitic blotch* of Mr. France, of which Mr. Smee first reported a case, in 1844, in the *London Medical Gazette*, is described as a limited and well-defined discoloration of the mucous membrane of the globe, which, within the affected area, is slightly thickened and raised; but not conspicuously, if at all, more vascular than the neighbouring surface. There does not seem to be any disposition to ulceration, as when the margin of the lid is attacked with syphilis; there is no pain, and no morbid discharge.

Three cases of this affection, occurring in a man, a woman, and a child, are related, and a coloured plate, representing their eyes, is attached to the communication.

IV. *Obstruction of the Superior Vena Cava, at its Termination in the Heart.* By G. OWEN REES, M.D.

Three cases related in this interesting paper illustrate: 1st. Obstruction of the superior vena cava from fibrin, “evidently of old date, being very tough, and closely incorporated with the walls of the vessel, and converting it into a solid cord.” 2d. Obstruction from a remarkably hard fibrous cancer, occupying the mediastinum surrounding the bloodvessels; and 3d. Obstruction from a cancerous fungoid growth, which extended over the base of the heart, implicated the great vessels, and even penetrated the heart itself.

A plate is attached to this paper, representing the case first related.

V. *Report on Pyæmia, and some Allied Affections.* By SAMUEL WILKS, M.D.

The main object of this paper is to examine some of the facts connected with the post-mortem appearances after death from pyæmia; and for this purpose Dr. Wilks has placed together all the cases of fatal pyæmia which have occurred in Guy's Hospital during the last eighty years, and in which post-mortem examinations have been made. They are 173 in number, and a sufficiently full history of each one is given separately. These cases are divided into different series in accordance with the circumstances which gave rise to the disease, as the causes of pyæmia constitute the most practical point of interest.

Dr. Wilks only touches briefly on the pathology of pyæmia, but clearly states his adhesion to the modern theory, that the elements of pus or some allied matters are introduced into the blood, which then induce similar inflammatory products elsewhere. The channel of infection is probably to be found in some vein or small vessel that has taken up the morbid matter. The result of its introduction into the circulating fluid is to cause it to coagulate either in the large vessels or in the capillary system of the viscera. This coagulation of the blood is the first stage of the morbid condition produced in the viscera, and the last stage is suppuration. The local disease, however, found in the lungs and other parts after death, is not sufficient, in the majority of cases, to account for death through the instrumentality of the organs themselves, and recourse must be had to the blood-disease itself, and its effects on the system or nerves, to account for the event.

This communication of Dr. Wilks is by far the most important one in this volume of the "reports," and forms perhaps the most valuable contribution that exists, to our knowledge, of pyæmia, the most dreaded enemy the surgeon has to encounter. Its nature, however, is such as to defy anything like a brief analysis, and we must content ourselves, after the short account just given of Dr. Wilks's views as to its pathology, with calling to it, as well as we are able, the attention of the profession.

VI. *On the Influence of Alkalies in Checking the Production of Artificial Diabetes, and in Leading to a Rapid Disappearance of Amyloid Substance from the Liver.* By F. W. PAVY, M.D.

VII. *On the Influence of an Acid in Producing a Diabetic State of the Urine.* By the same.

XVII. *Researches on the Influence of Various Articles of Food on the Elimination of Sugar in a Case of Diabetes, with Reports of other Cases Successfully Treated by Restriction to a purely Animal Diet.* By the same.

These three communications can be very advantageously considered together. Dr. Pavy, in a paper in the fourth volume of *Guy's Hospital Reports*, noticed in the number of this *Journal* for April, 1859, maintained, as a result of experiment, that in the liver a substance is formed, convertible with extreme facility into sugar, by a process allied to fermentation; that this substance seems to have the power to resist this transformation while located in the tissue of the living and healthy liver; but with the destruction of life this power of resistance is at an end, and the organ then becomes speedily charged with the saccharine principle. The fifth volume, noticed in this *Journal* for January, 1860, contained another communication from Dr. Pavy, in which he argued, from experiments, that the medulla oblongata through the sympathetic nerve gave to the liver this force or condition by which this chemical tendency to a saccharine metamorphosis is overcome. The communications to the present volume, as seen from their titles, continue this interesting and important subject, of the formation in the liver of amyloid substance,¹ and the influence of certain substances upon its production and its conversion into sugar.

The following is a summary of the results arrived at by Dr. Pavy, in consequence of his experimental researches as to the action of an alkali:—

The introduction of carbonate of soda into the circulation prevents the production of saccharine urine after lesions of the sympathetic otherwise occasioning it. When it is injected into the portal system during life, it causes a rapid disappearance of amyloid substance from the liver without any sign of the production of sugar. The amyloid substance, in disappearing under the action of the alkali, does not undergo transformation into sugar, nor is it destroyed by any direct chemical power possessed by the carbonated alkali; the facts seem to suggest that it is transformed by a process of the nature of catalysis. Though it cannot be said positively that the amyloid substance is directly transformed into fat, yet there is a close connection between its disappearance from the liver, the production of fat in that organ, and the condition of the bile.

It is well to add that the quantity of carbonate of soda, used by Dr. Pavy in his experiments, which, as usual, were performed upon dogs, was from fifty to two hundred grains, dissolved in from four to eight drachms of water. To produce its effect he found it necessary, when throwing it into the portal system, to inject it rapidly; or else to impede the escape of blood from the liver, by holding the muzzle of the animal so as to temporarily check its breathing; for in this way the carbonate of soda is delayed in the liver, and thus enabled to bring about the chemical alteration just noticed.

In the experiments made to determine the effect of depriving the blood of its natural alkalinity, Dr. Pavy introduced phosphoric acid into the duodenum or some other portion of the small intestine. The preparation used was the official dilute phosphoric acid of the London Pharmacopœia, the formula for which is given in the *United States Dispensatory*, and from ten to thirty drachms were

¹ The term *hepatine*, first given to this substance, is abandoned by Dr. Pavy, for the reason that it is found in the other parts of the body besides the liver.

injected. From these experiments it is evident that the presence of an acid in sufficient amount in the system so prevents the normal processes of life as to occasion a considerable production of sugar, which passing into the blood escapes by the urine. This must be considered to be caused by the effect of the acid upon the liver, as a consequence of which the chemical disposition of the amyloid substance to change into sugar is allowed to come into play.

In the third communication of Dr. Pavy to this volume, a minutely detailed history of a case of diabetes is given, in which the relation existing between the ingestion of different articles of food and the extent of elimination of sugar by the urine was carefully investigated. The patient being in the hospital, he could be strictly observed, and every regulation enforced; a laboratory was at hand with all the needful chemical agents and appliances, and a staff of active and intelligent students rendered their assistance in carrying on the investigations. From the 1st of February to the 21st of March, every four hours, the urine was examined, and its quantity, its specific gravity, with the quantity of sugar per ounce, and also the whole quantity, were noted. The case is first related at length, with the daily observations and comments; the results are then given, in tabular form, for greater facility of examination and comparison, and a diagram is added, so arranged that at a glance one may see the influence of the food, each day, upon the quantity of sugar in the urine. When the patient had the ordinary full diet of the house, the amount of sugar daily discharged in the urine was 10,500 grains; when he took only meat, beef-tea, and jelly without sugar, the quantity was 594 grains. At the same time that the quantity of sugar diminished the patient improved strikingly in appearance, health, and strength; he did not object to this kind of food, did not get tired of it, and said that he felt no longing after bread nor any other vegetable substance. He was allowed greens, however, as they were found by observation to produce no ill effects. He left the hospital plump and happy, saying that he never felt better in his life; he had no thirst, no dryness of the skin, and his appetite was easily satisfied.

The reports of several other cases, less minutely related, are subjoined in this communication. They were all treated by restriction to animal food, and in all the treatment proved in the highest degree successful in affording to the patient complete relief from the bodily symptoms of his complaint. The quantity of sugar in the urine was always greatly diminished, and in one case it totally disappeared.

On reviewing the results produced in these cases of diabetes, by the influence of food, Dr. Pavy says: "In the healthy person the starch and the sugar consumed as food are assimilated, and rendered subservient to the requirements of the economy. In the diabetic, there is an absence of this power of assimilation, so that whatever of such food is taken, on account of its not being properly elaborated, it filters through the system in obedience to the simple laws of physics. I believe, in thus passing through the system, the sugar in such quantities so alters the natural character of the blood as to unfit it for properly performing the healthy operations of life, and in this manner occasions the functional disturbances and structural changes that occur in diabetes. The obvious rational plan of treatment (until a means can be discovered for restoring to the body what is deficient, or correcting what is faulty) is restriction from food charged with unassimilable materials.

"The sugar that may still continue in the urine under abstinence from vegetable food results, I consider, from a non-assimilation of the amyloid substance manufactured by the liver out of the materials resulting from the disintegration of tissue and the retrograde metamorphosis of aliment absorbed into the circulation in excess. As long, however, as the sugar in the urine can be kept down to ten, twelve, or even fifteen hundred grains a day, my experience, as far as it has extended, is, that the patient does not in any way know of the existence of his complaint, otherwise than by the necessity of restricting himself to the regimen essential to attain this object. With only such an amount of sugar escaping, I believe that the blood remains adapted for the healthy performance of all the functional operations of life."

VIII. *Vomiting as a Sign of Disease.* By S. O. HABERSHON, M. D.

In this communication the author has placed together a number of cases of diseases of various kinds in which vomiting was one of the most prominent symptoms, in order to illustrate its value in diagnosis.

The intimate connection of the nerves of the sympathetic plexus with all the abdominal viscera and with the spinal nerves, and the extensive distribution of the pneumogastric which supplies in the abdomen, not only the stomach, but the duodenum, the liver, the pancreas, the kidney, and the supra-renal capsules, and in the chest, extends to the lungs, and communicates with the cardiac ganglia, explains how disturbance of the function of the stomach is frequently owing to disease in some other organ. Irritation in one set of branches of nerves is often seen to manifest itself in the disturbed function of another part supplied by the same nerve.

Dr. Habershon divides the causes of vomiting into those which originate in the stomach itself, and those which arise from its sympathetic connection with the brain, lungs, abdominal viscera, and general nervous system. The effect of these different causes is illustrated by a large number of highly interesting and instructive cases, and most appropriate general remarks are introduced to complete the subject. The communication is one well worthy of attentive study.

IX. *Remarks on Cauliflower Excrescence of the Os Uteri.* By J. BRAXTON HICKS, M. D.

This communication is a contribution of some importance to our knowledge of the pathology and treatment of the peculiar malignant disease of the os uteri, known as "cauliflower excrescence." By using the écraseur, Dr. Hicks has repeatedly removed the whole diseased mass, and submitted it immediately afterwards to microscopical examination. In the early stages of the disease, the villi are affected more particularly; and it extends, subsequently, to the subjacent tissue, and the other structures, as the mucous crypts and channels.

For removing the cervix uteri, in place of the chain in the écraseur, which can only act in a straight line with the shaft, Dr. Hicks finds it better to use a rope of annealed steel wire, which, if the hand cannot pass it round the tumour, is introduced by means of two tubes, like those of Gooch's double canula.

Two plates are attached to this communication, representing a removed tumour, with portions as seen under the microscope, and their anatomical elements.

X. *Case of Diabetic Cataract.* By JOHN F. FRANCE.

This communication gives the history of a case of diabetic cataract, in which the operation of extraction was performed. The escaped broken pieces of the lens, being tested for sugar, gave no indication of its presence. This examination, however, appears to have been made by a person not experienced in chemical analysis. The operation of extraction, as might, we think, be anticipated in such cases, proved a complete failure; the eye became inflamed and vision was irretrievably extinguished.

We cannot forbear, in this place, to call the attention of all those interested in the subject of diabetic cataract, to the three remarkable articles contributed by Dr. E. Lecorché, to the May, June, and July numbers of the *Archives Générales de Médecine*. They contain, so far as we are able to judge, all the information that can be acquired on this subject, at the present day. Among the conclusions to which Dr. Lecorché arrives, we may notice these: that diabetic cataract is not owing to saturation of the aqueous humour by sugar or an acid, but must be considered as one of the manifestations of the profound deterioration of the organism, and that it only appears at an advanced stage of diabetes, and affords a prognosis of certain and not distant death.

XI. *A case of severe Mutilation of the Forearm, with extensive loss of Bone.* Communicated by Mr. RICHARD EAGER, of Guilford. With some *Practical Observations on Injuries of the Forearm and Hand.* By EDWARD COCK.

The case of Mr. Eager, recorded in this communication, is one of the many on record, where, by judicious treatment and skilful surgical appliance, a limb has been preserved which at first sight, from the severity and complication of

the injury, might reasonably have been consigned to the amputating knife of the surgeon. The accompanying observations of Mr. Cock upon the circumstances that should guide the opinion of the surgeon, when called upon to decide on the retention or removal of a part of the body, are eminently judicious.

A plate represents portions of the bones of the forearm which were removed when the arm was first dressed. That removed from the radius measured $3\frac{7}{16}$ inches in length; the portion of the ulna $1\frac{3}{10}$ inches.

XII. *Description of a Case of Intra-parietal Hernia, with references to Cases which were probably of a similar kind.* By JOHN BIRKETT.

The case related in this communication is not unique, yet it offered facilities for a far more accurate examination than is generally made, and on this account its study is particularly interesting. The histories of a number of cases that resemble the one in question are also related, so that the paper forms quite an important contribution to the science of abdominal hernia. The practical conclusions we may draw from it are these: When called upon to operate in a case in which all the symptoms of strangulated hernia exist, after the contents of a hernial sac are supposed to have been reduced into the peritoneal cavity, the surgeon must examine, first, the upper part of the scrotum and the external abdominal ring for any portion of the hernial sac. Not meeting with it there, the inguinal canal must be opened by cutting the aponeurosis of the external abdominal oblique muscle from near the upper margin of the ring outwards and upwards towards the crest of the ilium. The hernial sac and its contents may be encountered here, lodged between the anterior abdominal walls, or running backwards into the iliac fossa. Should this not be the case, the spermatic cord must be followed through the internal abdominal ring, and there between the peritoneum and the internal abdominal fascia the hernial tumour is discovered. The surgeon then opens the sac, finds the intestine, and is surprised to find with what facility he is enabled to replace it in what he believes to be the peritoneal cavity. But this very facility should induce him to seek further, for the case is then probably one where the hernia has escaped through a laceration in the neck of the hernial sac. He should next pass his index finger along the upper surface of the intestine and the mesentery, and it will reach the orifice of the hernial sac, which firmly constricts the bowel. This being dilated or incised, the hernia can be returned into the peritoneal cavity.¹

A plate containing two figures is attached to this communication, for the purpose of illustrating the case of intra-parietal hernia therein described.

XIII. *Case of Compound Fracture and Dislocation of the Astragalus.* By THOMAS BRYANT.

This communication contains simply the report of a case of compound fracture and dislocation of the astragalus, where the patient recovered without amputation, and with the ability of taking free exercise without any inconvenience. It is accompanied by a plate representing some nine separate portions of the astragalus removed after the accident, and in subsequent operations.

XIV. *Description of some New Wax Models, illustrating a Peculiar Atrophy of the Skin, &c.* By THE CURATOR.

According to his usual custom, the Curator of the Museum gives, in this communication, a description of the more remarkable models of cutaneous diseases, which have been added during the year. They include a peculiar *linear atrophy of the skin*, the *eruption of glanders*, the *purpuric stage of smallpox*, *symphilitic keloid*, a peculiar inflammation of the skin which is styled *dermatitis*, and hands affected by *oxalic acid*.

Linear atrophy of the skin is a condition resembling the *lineæ gravidarum*, and derives a peculiar interest from the fact that it may arise from a morbid process, and without any previous stretching of the surface. In the cases from which the models were taken, such marks were found on the limbs both of a

¹ See the number of the Journal for April, 1860, for an analysis of a valuable communication of Mr. Birkett to the "Medico-Chirurgical Transactions" (vol. xlii.), on the subject of *réduction en bloc*, in strangulated oblique inguinal hernia.

young man and a young woman, without there having been any previous distension of the integument. This is a matter, therefore, not only of scientific interest, but also of practical importance: for there is no reason why such marks should not arise from a similar morbid process on the abdomen of an unimpregnated woman; and if so, their diagnostic value as a sure sign of pregnancy or previous distension is of far less importance than is generally supposed.

A plate attached to this communication shows the leg of the young man affected by the linear atrophy of the skin, displayed in the transverse markings running across the lower anterior portion of the thigh.

XV. *On Paralysis of the Lower Extremities, consequent upon Disease of the Bladder and Kidneys (Urinary Paraplegia).* By WILLIAM GULL, M. D.

It is a well-established fact in medicine, that paralysis of the lower extremities is occasionally caused by diseases of the urinary organs; but medical authorities are not agreed upon the state of the spinal cord in these cases, nor upon the character of the morbid processes by which the cord is affected.

In this communication Dr. Gull argues very forcibly against the opinion, which is the one generally held, that this peculiar form of paralysis depends upon mere reflex irritation. At no age is the nervous system more susceptible than in childhood, and yet children are not commonly the subjects of urinary paraplegia. In women, again, calculus, cystitis, and pyelitis are not unfrequent, and nevertheless urinary paraplegia in them is extremely rare. The cause of their immunity, he says, is not to be found in their having a less susceptible nervous system, which the reflex theory would seem to require, but in the less complicated anatomical conditions of their urinary organs, and consequently a less need of mechanical interference, and, therefore, a less liability to the extension of inflammation to the pelvic structures and the cord. From facts like these, Dr. Gull concludes that urinary paraplegia arises from an altered nutrition of the cord, due to extension of the disease through continuous structures to the cord itself. He states, in addition, that as yet no case of the disease has been fully examined, post-mortem, without finding degeneration of a part of the cord.

XVI. *Contributions to the Practical Surgery of New Growths or Tumours.* Series IV.—CYSTS (continued). By JOHN BIRKETT.

A contribution of Mr. Birkett to the last volume of the "Reports," contained a series of cases illustrating the development of cysts of various kinds in the connective tissue of the body and their treatment. In this paper he proposes, he says, to relate a series of cases illustrating the formation of cysts in some of the organs of the body and their treatment. The cases to be found in it are four of cysts in the thyroid gland, two of cysts in the parotid, and six of cysts in the mammary gland. We feel bound to say, in self-justification, that a diligent search has not enabled us to find one fact or one remark worthy of being republished, in the whole of this paper.

In taking leave of this volume of the "Reports," while acknowledging its value, on the whole, as a contribution to the art and science of medicine, we must venture to express the regret that more time is not habitually expended by several of the writers in elaborating their communications. W. F. A.

ART. XIX.—*Annuaire de Thérapeutique, de Matière Médicale, de Pharmacie et de Toxicologie, pour 1861.* Par A. BOUCHARDAT. *Supplément à l'Annuaire de Thérapeutique, &c., pour 1861.* Paris.

THE name of M. Bouchardat stands high on the list of those zealous contributors to medical science, whose scientific knowledge and correct judgment, joined to patient industry, enable them to confer favours upon their professional brethren, and to aid the advance of investigation by recording its progress. It is well known to most of our readers that for each successive year since 1841, he has presented to the public a resumé of the important facts and improvements

contributed to the department of the Materia Medica and its kindred branches. In addition, from time to time, he has contributed, in the form of a separate essay, a summary of the actual condition of our knowledge upon particular subjects connected with his especial line of research. Devoted to chemical investigation in its application to pathology and therapeutics, he has presented in the manner stated the results of his studies through the long period of twenty years, and we may now refer to the last number of the *Annuaire and Supplement* as proof that there is no diminution of zeal or interest in his researches. It is our intention to glean from the publication such matter as we believe will be interesting to the medical men of this country.

Under the head of Narcotics M. Bouchardat remarks that, thanks to the persevering efforts of M. Aubergier, opium of the standard of 10 per cent. of morphia (opium titre a dix pour cent. de morphine) is a current commercial product which each pharmacist can procure if he desires, and that from this results a great advantage, which is, that in all good shops the preparations containing opium present a uniformity on which physicians can rely in prescribing them. In the *Annuaire* for 1860 we were informed that M. Aubergier, of the Faculty of Sciences of Clermont, had been engaged in the endeavour to secure the possession of opium containing 10 per cent. of morphia, with what success we learn from the following statement of that gentleman: "Since I have had the honour of submitting to the Academy an account of my efforts regarding the means of regulating the richness in morphia of opium employed in medicine, I have met with numerous difficulties. These difficulties have been so often presented as insurmountable, in the estimation of the Academy itself, that the time consumed by me in overcoming them ought not to be a matter of astonishment. The crisis with regard to food, which has existed for three years, by rendering the exigencies greater on the part of agriculturists, has increased the difficulty. The kindness with which the Academy has received my communications has been a powerful encouragement to perseverance, and I have regarded it a duty to profit by the abundance which has commenced, to develop the production of indigenous opium. The suspension of effort in this respect, on account of the deficiency of the cereal crops, has induced me to study under a new aspect the solution of the problem proposed, the regulation of the standard of opium employed in medicine. I have studied the production of opium in the East, and I have determined that I could easily procure oriental opium of the strength of 10 per cent. in morphia, and that in the case of an insufficiency of the indigenous culture it would be easy for me to continue the supply of opium of this standard by obtaining it directly from the East, before it has passed through the hands of falsifiers." "After having acquired this information, and taken measures founded upon it, strengthened, moreover, by an experience which goes back as far as 1843, I will undertake to place in commerce a standard opium of 10 per cent., whose composition will always be identical. I have the honour of presenting with this letter a specimen of this opium, with the wish that it should be exhibited to the Academy. The tinfoil leaf which I use as an envelop has the advantage of better preserving the opium than the poppy leaf or the seeds of the *rumex* usually employed."

Of late, it appears that opium as an article of culture has again attracted attention in France, several species of poppy having been experimented with. According to the report of M. Roux, it appears that the juice derived from these plants has a greater amount of morphia than is found in the article of commerce. It is certainly desirable that this subject should receive the attention in this country which it appears to have attracted in France, and there is no reason why, as with respect to scammony and other articles of the Materia Medica, the purest kinds should not be demanded by the profession.

On the Meconate of Morphia in Subcutaneous Injections in Puerperal Eclampsia.—From the *Bulletin Thérapeutique* is derived an interesting observation by M. Scanzoni, who has employed with advantage the method proposed by M. M. Woodd and Behier. This author states that the numerous experiments that I have made upon this method, have convinced me that if the effect be not always persistent, if, for example, neuralgias are not always cured, there is produced always and in a short time, often a few minutes, such effects as do not

permits a doubt as to the action of opium on the brain. A single injection of the solution, containing 12 milligrammes of the meconate of morphia (about $\frac{1}{4}$ gr. Troy), habitually determined heaviness and dulness and disturbance of the functions of circulation and respiration, and if the dose was stronger somnolency was induced. The report of advantage derived from this mode of treatment in various diseases induced him to put it in practice in puerperal eclampsia, and with the most satisfactory result. After three injections made with the meconate of morphia, there were but two attacks in nine hours, while previously there had been three in an hour and three-quarters. For the meconate, the muriate may be substituted. In commenting upon the employment of subcutaneous injections, it may be remarked that an inconvenience we have met with is the occurrence of abscesses in the portion of the body injected. A case of troublesome persistent discharge of the kind has fallen under our notice, adding much to the sufferings of the patient.

Another case of the employment of subcutaneous injection is reported—it is that of the sulphate of strychnia for prolapsus of the rectum in a female four years of age. M. Foucher introduced the canula of a Pravaz syringe in the direction of the sphincter, on the side of the anus, and injected ten drops of a solution containing three grains of the sulphate of strychnia to six drachms of distilled water. During the course of the day, the child manifested nothing unusual, and in three movements the mucous membrane prolapsed but once. The next day there was no prolapsus, and upon the day after it occurred but once. Twenty-four hours after the last prolapsus, M. Foucher injected anew fourteen drops of the solution, and from that time, during the period of six weeks that he remained in charge, there was no recurrence of the prolapsus. Two months after the injections, the child was taken to the medical ward, labouring under varicella with high febrile action. During four days that the fever lasted, the rectal mucous membrane protruded at each movement, but after the attack of varicella disappeared, the accident did not again occur, although no treatment was instituted. The cure was complete and persistent.

Strychnia has been employed by M. Tillier in three cases of paralysis from diphtheria. The treatment consisted of subcarbonate of iron fifteen grains, and strychnia to the extent of one-thirteenth of a grain, daily. At the end of fifteen days there was marked amelioration, and radical cure at the end of three weeks in the first and second cases, and in the third case in less time.

The French physicians are frequently struck with the heroic method of employing medicines by the English. Thus, allusion is made to this practice by M. Bouchardat, who quotes a case of retention of urine, reported in the *Lancet* of April 30th, where, in consequence of the inability of introducing the catheter, the patient was given seven grains of morphia with seven drachms of bicarbonate of soda, administered in divided doses every half hour, when the bladder emptied itself spontaneously at the end of twenty-four hours. He remarks that these large doses of morphia would cause legitimate apprehension in French physicians.

M. Demarquay has published in the fifty-ninth volume of the *Bulletin de Thérapeutique* an interesting note upon the employment of continued fractional doses of opium in the treatment of strangulated hernia. Six years ago, says M. Demarquay, I was called to take the place of M. Monod, and I saw this skilful surgeon treat his cases of strangulated hernia differently from what I had done, that is to say, instead of purging them, he administered a grain and a half of opium in ten pills, one pill every hour for twenty-four or forty-eight hours, and with the best results. If in this time the natural evacuation did not take place, a saline purgative was given, which generally succeeded well. It is a common practice with surgeons in this country to give a full dose of opium or its preparations, and we extract this case rather as evidence of feeble practice on the part of the French surgeons. The influence of opium in all intestinal inflammations is so decided, that it is wonderful that this is not understood by the French. We have been surprised in perusing the treatise of Baudelocque on puerperal peritonitis, to find that opium is not alluded to as one of the remedies.

With regard to Lactucarium, M. Bouchardat remarks, that the numerous

communications made this year in the journals upon this substance are evidence of the importance it has assumed since the beautiful researches of M. Aubergier. Many preparations, of which this medicine is the base, are found in the new English formularies, but none comparable to those presented by the learned Frenchman. Let us commence by presenting a summary of an article of M. L. Malenfant, published in the *Journal of Pharmacy*. He presents in this article an account of the preparation of the Thridice. "I collect," says he, "my lettuce when ready to flower, and at a dry period. I separate the leaves and place them aside to be operated on later. I now cut off the stems as far down as the first ramifications, rejecting the thick lower portion; they are then cut in pieces and bruised in a mortar, afterwards subjected to pressure and the juice collected. The juice is rapidly boiled to prevent fermentation, and the scum of chlorophylle, albumen, caoutchouc, &c., removed. Four or five minutes of ebullition are sufficient. The cold juice indicates 5° of the saccharometer. It possesses a slight acid reaction, owing to lactic acid. I then concentrate it in a water-bath, using an alembic, measuring or weighing the fluid, and when two-thirds of the water has been distilled off I decant the semi-syrupy liquid into a stone-ware conical vessel, leaving it stand for two hours. The cold liquid is of the gravity 16°—18°. After twelve hours of repose, I decant the fluid portion with care, filter it through paper and evaporate rapidly in a water-bath to the consistency of a soft extract, which is to be preserved in closed vessels. M. Malenfant states that the thridice has agreeable and sedative properties. This extract has the same relation to lactucarium as the juice of poppy heads and of the stems has to opium. During this year two formulæ for the syrup of lactucarium have been published, one directing 3 centigr. of codeia (about $\frac{1}{2}$ gr.) and the same amount of lactucarium to 100 grammes of syrup (about 3 oz.). As remarked by M. Bouchardat, the addition of codeia is not happy, as this base operates similarly to morphia. In fact, the syrup thus prepared cannot be considered as bona fide syrup of lactucarium. The other formula directs as an addition citric acid. The formula of M. Aubergier, adopted by the Academy of Medicine, and published in the *Annuaire* of 1834, is in all respects regarded as the best.

With respect to Atropia, it is observed that this substance is one of the most important therapeutical triumphs of our day, for it has taken the place of preparations derived from the virulent solanææ, so apt to be variable and uncertain. The method of subcutaneous injection popularized by M. Behier, has opened a new era of application, still we are ignorant of the easiest way of preparing atropia. The following hint is important. When crude atropia is dissolved in acidulated water and neutralized by an alkaline carbonate, the matter which in the first place is deposited is a resinous substance, but when the precipitate commences to become pulverulent, it is atropia. This is alkaline, and has been called *belladonnine*.

At this time, when the employment of anæsthetic agents has become universal, the following reflections may prove interesting. "Every month the periodical press records cases of death produced by the use of anæsthetics, and among so many examples it is not fair to say that this result is owing to want of caution on the part of operators. The cause of these terrible accidents has been sought for with much care, and most frequently the conclusion has been arrived at that death occurred from syncope, but if anything ought to surprise us, it is that death does not occur more frequently when anæsthetics are employed in sufficient quantity to produce complete anæsthesia. It is understood, without difficulty, that the action of a substance which suddenly abolishes the functions of animal life, which determines the insensibility of death, can extend its impression to the functions indispensable to the maintenance of life. Sleep from anæsthesia first occurring, respiration and the pulsations of the heart may be interrupted, hence syncope, and if this be prolonged we have death. If this is the course of events, one can comprehend that it is difficult to foresee the impressionability of any given individual, as this involves a personal equation which experience alone can solve. This impressionability must vary in each individual, according to the conditions of strength, or weakness, or the tendency to disease, &c. Shall we then blame the employment of

these wonderful agents, which not only suppress pain, the great evil of humanity, but increase the successful chances of a great number of operations? By no means, but it is a duty to arouse the solicitude of all who employ them. If in the great hospitals of Paris the accidents are so rare that they can be counted, it is to be attributed to the fact that our colleagues do not push anaesthesia to its utmost limits, that they watch continually its employment, and do not have recourse to it, when any contraindication presents." As a means of resuscitation and of the prevention of fatal results, M. Bouchardat recommends the preparation of oxygen gas and its being kept at hand in vessels fitted for exhibition easily and instantaneously. He states that he has always considered the inhalation of oxygen the best means of combating asphyxia from want of atmospheric air, from the presence of various gases, and from chloroform and ether. M. Ozanam states, that in the different experiments he has made, he has constantly witnessed the animal revive more promptly with oxygen than with atmospheric air, and the difference of time is more than one-half. The results have been the same when experimenting with either ether or chloroform. Many animals were put under the influence of chloroform until the pulsations of the heart were imperceptible, respiration very much weakened and death imminent, and yet scarcely were they submitted to the restorative action of oxygen, than respiration became strong and regular, and the recovery was most rapid. Finally, to render this clear and decided, Mr. O. instituted an experiment in which the animal respired at the same time a current of vapour of ether and one of pure oxygen. He had to expend nearly fifteen grammes of ether; the animal inhaled for twelve minutes before sleeping, and at the end of this time the sleep was so light that it awakened spontaneously at the end of a minute and a half without the oxygen. A second experiment was made with a double current of oxygen and chloroform, more than fifteen grammes of which fluid were employed, and yet at the end of eight minutes the animal was little enfeebled, sleep had not occurred, and in a few moments after the inhalation was stopped, the natural state was resumed. Thus, when the anæsthetic vapour is respired conjointly with oxygen, three or four times as long a period elapses before sleep is produced as when atmospheric air is respired with it. These results confirm those of M. Duroy.

The results of the discussion on the relative merits of ether and chloroform, by the Society of Medicine of Lyons, has already been presented in this journal. They were in favour of ether; but the Society did not pass the resolution, that "the *presumption of imprudence*" should be attached, in the estimation of the Society, to the exhibition of chloroform in future, where it could be replaced by ether. M. Bouchardat, in his commentary upon these conclusions, leans to the opinion that chloroform should not be summarily abandoned, and states that, from the time complete anaesthesia is obtained, theoretically at least, the same danger presents. If ether appears less redoubtable, it is because there are not obtained by it effects as rapid or as complete.

Under the head of general stimulants it is stated, on the authority of Wyman, that *fusel oil* excites nutrition, so that patients who use it grow fat, as if using the cod-liver oil. He remarks that, in many subjects, this article appears to have a direct influence over cough, analogous to that of opiates; that it moderates it and diminishes the amount of sputa. Sometimes it produces nausea, when the dose must be diminished or the medicine intermitted. There is another class of subjects in whom *fusel oil* produces wonderful effects; these are miserable, feeble, emaciated children, who are always complaining. He has seen such children completely altered in aspect at the end of a week, and recover in a month their flesh and health, even in cases where there was reason to suspect the existence of pulmonary or abdominal affection. It is not always that this amelioration is so decided; but such success has been obtained by *fusel oil*, that he does not hesitate to declare that it is one of his favourite remedies. It is prescribed in the dose of half to a full drop for an infant of six months, and five or six drops for an adult. It is given to children in syrup, and to adults in water or whiskey and water.

There are some remarks of M. Briau upon the subject of benzoate of soda in gout, under the head of diuretics. Having been impressed by the fact that some of the English chemists had announced that benzoic acid decomposed uric

acid, by changing it into very soluble hippuric acid, he, in 1842, first administered benzoic acid in gout; this disease being accompanied by the excessive generation of uric acid. But it was not in general well borne by the stomach, and could not be continued for any length of time, besides which it irritates the throat. It was, therefore, laid aside, and the crystallized benzoate of soda substituted for it. This salt, which is soluble, is well supported by the stomach, even in large doses, and sometimes it may cause light but little durable irritation in the gullet. Generally, it leads to an increase in the quantity of urine.

According to his views, a correct treatment of gout should have the effect of increasing moderately and persistently the principal secretions of the economy. To obtain this result an excitant of transpiration should be joined to the benzoate of soda, and he employs muriate of ammonia. In uniting these two salts he obtains what he desires, viz: augmentation of urinary secretion and insensible transpiration. As gouty patients are liable to constipation, he adds to the mixture some powdered senna, which fails not to produce one or two stools a day. The following is the receipt: Take of benzoate of soda 3 parts ($25\frac{1}{2}$ grs.); muriate of ammonia 2 parts (17 grs.); powder of senna 2 parts (17 grs.). Mix the substances thoroughly, and keep in a close vessel. One-fourth the mixture is to be given night and morning, in water, increasing the quantity until on the fourth day one-half may be taken. The treatment is to be continued for eighty or one hundred days. During the treatment acid food and drinks are to be avoided, and exercise is to be enjoined.

The most favourable time for instituting this treatment is the intervals of the paroxysms.

The question as to the value of *Sulphate of Cinchonia* has again occupied the public mind, and we have here presented to us an interesting report made to the Academy of Medicine upon a memoir of Dr. E. Moutard-Martin, Physician of the Hospital Beaujon, entitled "Upon the Value of Sulphate of Cinchonia in the Treatment of Intermittent Fevers."

M. Bouchardat remarks that, in spite of the beautiful investigations which have been presented upon cinchonia, there are many points still to be elucidated. Delicate controversial questions, difficult of solution, present themselves whenever the subject is approached. Does then cinchonia act as quinia in combating intermittent fever? Ought it to be considered as inferior? The marked and remarkable physiological properties of the salts of quinia are well known; are the properties of the salts of cinchonia different? and if so, what are they? To these questions a response may be given by attentive observation, and to this the author has devoted himself, and possessing ample material, has produced the memoir above mentioned.

The points presented for consideration, are: 1. The necessity of determining the previous influence of hygienic measures when a febrifuge agent is experimented with. 2. The precautions indispensable for determining the value of the experiment. 3. The results obtained with the sulphate of cinchonia. 4. The physiological effects of this salt. 5. Can the sulphate of cinchonia replace the sulphate of quinia? 6. Will there be any advantage in introducing the sulphate of cinchonia into common use in therapeutics.

In answer to the first inquiry, M. Martin remarks that, let a patient who has been exposed to paludal effluvia, and has contracted an intermittent fever of any type, quit the place of infection where he has lived; let him change the air and mode of life, &c., and the paroxysms will disappear, in the greatest number of cases, not slowly, but rapidly, as under the influence of energetic treatment. These are the conditions in which the patients are placed upon whom have been made experiments with antiperiodic medicines, as all of them nearly have been made in hospitals. The following is his experience: A patient presents himself suffering from intermittent fever, and presenting all the characteristics of miasmatic intoxication. There is no doubt with respect to such a patient; and yet, from his entrance into the hospital, he has no paroxysm of fever, and he leaves, at the end of a few days, having regained his colour, and without splenic tumefaction, without having undergone any other treatment than repose and a good regimen. At other times the fever does not so suddenly disappear; but, on the day after admission, the paroxysm is weaker than before; the next day only

traces are exhibited, and finally the patient is cured. These cases of rapid cure from change of habits and regimen are numerous.

It is highly important, before administering a febrifuge, whose action is imperfectly known, to observe the patient for several consecutive days, and to study with care the return of the paroxysm—whether it anticipates or is retarded—if the intensity is the same—if the different stages are modified; and it is only after having seen at least three or four paroxysms perfectly alike, that we can administer the febrifuge under experiment, so as to draw any conclusions from its action. Every one knows that a few observations in which these precautions have been taken are more valuable than a greater number in which they have not been attended to. A distinguished physician who has practised in Africa, M. Laveran, published, in 1856, in the *Gazette Médicale*, a memoir proving the same thing, viz.: that patients having contracted intermittent fever were cured by undergoing no treatment except removal from the place of infection to the nearest hospital. In 88 cases the average proportion of paroxysms of fever, after entrance, were to the extent of $2\frac{1}{2}$ without treatment, according to M. Laveran. In order to guaranty, as far as possible, from the chances of error, upon which M. Martin has insisted, he has always waited until three paroxysms have occurred, before administering the sulphate of cinchonia; and further, to ascertain if nothing appeared either in intensity or duration to lead him to believe there would be a spontaneous solution. In a single case he alone departed from this rule.

Whenever gastro-intestinal complications existed they were treated by an emeto-cathartic or a purgative, or if diarrhoea existed it was combated before giving the sulphate of cinchonia, the author being well assured that in spite of the emetic or purgative the fever would follow the regular course without undergoing modification. All the patients were placed upon a nourishing and sustaining regimen. It may be remarked that the purity of the medicine should always be tested to be assured that it does not contain sulphate of quinia.

In order to determine the physiological effects, and to show how large doses could be borne, M. Martin took 40 centigrammes (6 grs.) of sulphate of cinchonia in the morning fasting; at the end of half an hour he experienced feebleness and warmth in the stomach which continued three-quarters of an hour; when the dose was increased to 70 centigrammes ($10\frac{3}{4}$ grs.), in a quarter of an hour after ingestion, he was attacked with violent pain in the head, especially over the eyes, constriction of the temples, dull pain in the stomach and desire to vomit (which was removed by a draught of cold water), and feebleness, which caused him to remain seated for twenty minutes. The headache persisted for nearly two hours. These experiments were sufficient, and were confirmative of those presented in the Supplement to the *Annuaire* for 1856. The quantity which might be given was ascertained to be 1 gramme to $1\frac{1}{2}$ gramme, $15\frac{1}{2}$ to $23\frac{1}{4}$ grs., by arriving gradually at this dose, but never more.

Of 51 patients received into his wards, 23 alone possessed the conditions desirable for the administration of sulphate of cinchonia. Of these, 12 had quotidian, and six were cured, 2 were not benefited, and 4 were not sufficiently important to be taken into account, the paroxysms being on the decrease when the medicine was administered. Again, of 10 of these 23 cases, 6 were cured more or less speedily, 2 were only modified, and in 2 the action of the medicine was not developed. Lastly, 1 quartan fever was cured. Now, in revising and rejecting the 4 cases not regarded by the author of sufficient importance, there will remain 19 cases, of which 13 have been completely cured, 2 have been improved, and 4 have been unsuccessfully treated. It is from the study of these 19 cases that the author draws his conclusions.

From the comparison of all the facts recorded in the physiological and therapeutical history of cinchonia given in the supplement of 1856, M. Bouchardat concluded, that to combat non-malignant intermittent fevers, the sulphate of cinchonia was in equal doses on a par with the sulphate of quinia; he observed, nevertheless, that in equal doses the last-named salt more rapidly suppressed the paroxysm; but the first was, at least, as certain when the element of time was disposed of, and the pernicious type was not feared. This is not the opinion of our author, who thinks that whenever the sulphate of cinchonia acts suffi-

ciently, its effects are similar to those of the sulphate of quinia. It prevents the paroxysm, but at other times its action is not sufficient to accomplish this, and if the dose be increased accidents occur which do not permit its being pushed, and then the medicine imperfectly impresses each paroxysm, still diminishing it, so that the cure is accomplished little by little, as when sulphate of quinia is administered in insufficient doses. When it acts, according to M. Martin, the sulphate of cinchonia appears to make the same impression as the sulphate of quinia as regards nature, and to be different only in intensity. This identity of nature and difference in power accords with the estimate of M. Briquet.

If the want of success of the sulphate of cinchonia is more marked than that of the sulphate of quinia it is because its physiological action being more rapid does not permit its exhibition in sufficient doses. The author cites, in confirmation of the foregoing opinion, cases in which unpleasant symptoms have prevented the sufficient increase of the dose. He is satisfied that in the 4 cases where given ineffectually, the sulphate of quinia might have been pushed further than it was prudent to push the sulphate of cinchonia.

The study of the physiological action of sulphate of cinchonia presents as much interest as difficulty. Does cinchonia act upon the organism, and especially upon the brain, as quinia, but with one-third less power, as stated by Briquet? or, on the contrary, is this action more energetic and different as appears from the experiments and observations recorded in the supplement to the *Annuaire* of 1856? Here is the *résumé* of M. Martin.

Of 25 patients who took the sulphate of cinchonia, 12 suffered discomfort attributable to the remedy. Among the disagreeable symptoms there was a constant one even in individuals who took the least amount, and that was pain in the head occupying the frontal region and the temples. The patients laboured under an almost intolerable constriction of the anterior portion of the head. At the same time there was experienced a most painful weakness, yet variable in degree. Sometimes there was mere weakness, at other times the debility continued up to the commencement of the paroxysm accompanied with syncope, faintness, and paleness of the face. Some patients experienced sharp pain in the stomach, sometimes nausea and vomiting; but this was rare, only two exhibiting such symptoms in 23 cases. Once there occurred vertigo and pain in the limbs. These different phenomena may all occur in the same subject or only some of them, and hence the separation into constant and variable phenomena.

The physiological effects commenced, generally, in a short time after the ingestion of the substance, varying from the fourth to half an hour. In duration the difference is from half to three-quarters of an hour.

The best remedy against the occurrences stated, according to M. Martin, is the ingestion of cold water, when the pain in the stomach disappears and the other symptoms also, but this is only when the inconveniences are slight.

All the facts related by the author accord with those announced in 1856, and tend to induce the idea that cinchonia has a different physiological action under several points of view from that of quinia, and possesses a more energetic toxicological influence. The curious fact presenting itself in this connection is that two bases should exist, so near alike in their effects upon the animal economy, but one of them having more poisonous energy and less curative properties.

There is one fact upon which Briquet, Martin, and Bouchardat agree, and that is that sulphate of cinchonia is not as certain as sulphate of quinia in the cure of intermittent fever. If success with the first is less, according to the author, it is because the dose cannot be pushed sufficiently far without inconveniencing the patient, but M. Bouchardat thinks it is because cinchonia has a different mode of action.

Between quinia and cinchonia there are evidently differences in physiological action. Have they then a difference in therapeutic action of intensity only? This will be known better when cinchonia has taken rank with its congener, and is administered under conditions as varied. It may be that it has less power than quinia in intermittent fevers, but is superior in other diseases. In articular rheumatism it is less efficacious than quinia.

Can sulphate of cinchonia replace the sulphate of quinia in the treatment of

intermittent fever? To this question the author, without hesitation, answers, no. The following are his conclusions:—

1. The sulphate of cinchonia administered in intermittent fever has incontestable, but variable power.

2. Sometimes its action is rapid, and it prevents the paroxysm like the sulphate of quinia, at other times it is slow, whatever be the dose administered, and the disease exhausts itself little by little.

3. The dose of sulphate of cinchonia should always be, at least, one-third larger than the sulphate of quinia.

4. In order to obtain a curative action from sulphate of cinchonia it is necessary to employ it, in doses varying according to the individuals, from $\frac{1}{2}$ to 1 gramme (8 to 16 grs.).

5. In this dose it determines often some physiological effects beyond which it would not be prudent to push it.

6. The therapeutic action of sulphate of cinchonia is not in proportion to its physiological action, for it sometimes cures without the patient having felt its action, while in other cases the physiological action is energetic, and its therapeutic action is wanting.

7. The sulphate of cinchonia cannot replace the sulphate of quinia in the treatment of somewhat grave intermittent fevers.

8. The sulphate of cinchonia may become an important adjuvant to the sulphate of quinia, in completing the cure commenced by this salt.

M. Bouchardat concludes his resumé of the memoir by stating that the discussion in the Academy which followed the reading the report of approbation of M. Martin's researches, did not alter his opinion. He does not see that the base cinchonia is the diminutive of quinia, and thinks that in equal dose cinchonia may be more hurtful than quinia, but that the latter will better suspend the paroxysms of intermittent.

He proposes a union of these two bases as practically useful, and hence the red or impure quinia should be preferred.

We have extended our notice upon this subject further, perhaps, than compatible with our limits, but its interest has led us to present the most recent investigations which show the still unsettled state of medical opinion; still further researches and reports are desirable.

Having culled from the work the portions which have appeared most important, we shall close our notice of the *Annuaire* itself by stating that among its concluding chapters are those upon "the principal dynamical modes of action of medicines," from the *Principles, &c.* of Dr. Delion, of Toulon, in which the several modes of impressing the economy are discussed in what appears to be a philosophical way; and upon the "Influence of the Climate of Algeria upon Affections of the Chest."

Let us now turn to the *Supplement*, and the essay to which we shall give most attention is the commencing one on the "*Etiology and Prophylaxis of Pulmonary Tuberculization.*"

M. Bouchardat commences by stating, that it is not without great distrust that he approaches a subject so difficult as the etiology of pulmonary tuberculization, when he has seen men who have devoted their lives to its consideration hesitating with regard to it.

M. Louis has remarked that the study of the causes is the most important point in the history of phthisis, and unfortunately the least thoroughly studied so far; and M. Grisolle has added, that in spite of the labour and laudable efforts of our contemporaries, the greatest number of questions are yet to be solved, for science possesses on this subject fewer rigorously observed facts than of unproved assertions. In the study thus beset with difficulties, the design of M. Bouchardat is to refer all the causes of tuberculization, admitted by sound observation, to a single physiological cause, proceeding in the following order. 1st. to ascertain the physiological law of the *genesis* of pulmonary tuberculization; 2dly, to attentively examine all the causes admitted by observation and to refer them to this law; and 3dly, to set forth the prophylactic rules emanating from it, and in accomplishing these he proposes to pursue the course laid down by Condillac, to proceed from the known to the unknown, from the simple to the complex.

It has been observed by Prout and by Rayer, and confirmed by the researches of M. Bouchardat, that glycosuric patients are affected by consumption; indeed, in nineteen cases of the affection all were observed to have tubercular deposit in the lungs. The existence of tubercular deposit may not be observed during life, for the following reasons: the patients die during the first period of deposition, and the symptoms peculiar to the presence of tubercles are overlooked, while those of the second stage do not arise. In M. B.'s experience, in which he is supported by authority, no case of glycosuria was preceded by tubercular consumption, the glycosuria always preceded the tuberculization. The complication did not occur at the commencement of the affection, but after a year or more had elapsed. Two indispensable conditions exist for this fatal result; he expresses these conditions by two words: *quantity* and *continuity*, and to formalize the cause, it may be stated "that tubercles do not appear until the resources of calorification are well exhausted by glycosuria, and in consequence of this exhaustion, the functions of the lungs and the whole of the calorific apparatus are notably lessened." If for such aliments as sugar and fecula—which in the living organism are so easily converted into glucose—there are substituted either in whole or in part aliments of calorification, as the fats or alcohol, then the sugar in the urine is lessened or disappears, and if pulmonary tubercles do not exist, they are not developed except under other causes. From numerous observations of patients who had laboured under glycosuria in different climates M. B. has noticed that when nutrition was sufficient and the quantity of glucose eliminated did not exceed in the 24 hours 100 grammes (3 oz. 2 dr.), tubercles did not develop themselves in the lungs. For a speedy result, as above stated, a large elimination must take place.

But tuberculization occurs when the elimination of glucose has continued sufficiently long, and it is very evident that the most important circumstance in the health of a glycosuric patient is the persistent elimination of glucose which, under certain conditions may amount to a kilogramme daily (above 2 lbs. Troy). This formation and elimination is effected in consequence of the non-utilization of the principal mass of aliment and of the reserves of the system. The office of the principle eliminated is evident, in the physiological state, to provide for the wants of calorification. Hence a glycosuric patient is in fact in such position that he eliminates without using or appropriating a considerable quantity of the principal element of calorification, and if this is continued for a long time tubercles always appear in the lungs. Let us see how this is borne out in the case of domestic animals.

Experiments have been made on a large scale by dairymen in the neighbourhood of Paris, before the introduction of railroads, and the following facts have been elicited. An intelligent agent each year was engaged in selecting, on the principles of Guenon, the best Flemish cows, and as the milk was then more valuable in Paris than at present when a greater radius of supply exists, it was important to procure animals whose supply would be the greatest and continue during the longest time possible. The cows were stalled in stables from which they did not move, were without exercise, in an elevated temperature for the purpose of economizing aliments of calorification, and every attention was paid to feeding them. They were given, in proportion to the increase of appetite, their food at discretion; this consisted essentially of saccharine matters, such as dry clover hay, feculent and saccharine roots, as potatoes, beets, the residue of grain, as bran, bread crusts and malt, which were seasoned with salt. Under the influence of this regimen their appetite increased rapidly, and the amount of food and drink soon exceeded that under ordinary conditions. Two things then occurred, either the animals fattened rapidly producing little milk, when they were handed over to the butcher, or, in the majority of cases, when they were well selected, they were converted into *milk machines*, not of inferior quality, as this fluid was richer in *lactine* and as rich in butter as the milk of cows fed upon the best pasturages of Normandy. In a year or eighteen months they gave from 18 to 20 litres of milk instead of 7, which is the maximum under ordinary states.

Like glycosuric patients, these cows were a prey to very great thirst and insatiable hunger. On comparing a cow with forced lactation and one of normal lactation with especial reference to the aliments of calorification contained in

the milk, viz., butter and lactine, M. B. found that in ordinary cases a good cow gave 7 litres of milk, containing 261 grammes of butter and 411 grammes of lactine. In cows subjected to the particular treatment indicated he found as the mean 18 litres, containing 640.5 grammes of butter, and 1080.8 of lactine. It is easy, then, to understand that the two essential conditions to the safety of glycosuric patients are invaded by the continuity and the amount of the secretion.

What happens to the animals submitted to this regimen? Precisely that which happens to diabetic patients. Tubercles always develop themselves in the lungs, and if they are not given to the shambles they emaciate or die frequently in twenty-four hours of terrific pneumonia similar to that observed in persons labouring under profuse diabetes.

From the comparison and interpretation of these facts we can deduce the first general formula of the etiology of tuberculization, viz., "that the continued and excessive loss of the aliments of calorification induces pulmonary tuberculization."

We shall now pass to another interesting fact in this connection. It has constantly been observed that monkeys, who have been imported from the tropical regions, after some months or some years of residence in the North, die with tubercles in the lungs, and yet, as at the Museum of Natural History at Paris, every attention is paid to simulate as near as possible the temperature to which they were accustomed, their exercises and liberty as well as their food. Pulmonary phthisis carries off all of them sooner or later in our inhospitable climate. It is the very care that is given to imitate their food in their native clime that contributes to this result. The enemy that is most injurious to tropical animals is cold. As the temperature of 38° R. is to be maintained, the surrounding temperature being below that of their native country, should the resources of calorification remain the same, they will be insufficient. Now, this is the case with the monkey; the continuance of insufficient aliments of calorification relatively to the wants of his organization leads to pulmonary tuberculosis, as persistence in deprivation of the same aliments produces it in diabetic patients and the cow treated in the manner stated.

What is true of monkeys applies to all tropical animals when taken to Northern climates. An exception may be found in the parrot, which being fed from the table upon almonds and fatty substances escapes the law of deterioration. The facts that have been stated are less clearly verified in man than in animals, because the experimental conditions want fixedness and duration; man accommodates himself to the regimen of the country to which he has been transferred, yet there are some facts of interest. The negro transported to Northern regions is more affected than the natives of such region. According to the reports of the English physicians the native troops of India suffer in this way, and further when the inhabitant of the plains changes his location for one more elevated, he is in the same condition as one who has moved from a warmer to a colder latitude. In an elevated region there is, from the state of the atmosphere, less to support temperature, the air is less charged with oxygen; from this cause the monks of St. Gothard are afflicted with phthisis. It may be stated, then, that the persistent insufficiency in the aliments of calorification, both as respects external temperature and the requirements of the organization lead to phthisis.

With this rule thus laid down for his guidance, M. Bouchardat next proceeds to arrange under it the facts which have been difficult of comprehension.

There are two conditions which should be separated from each other, insufficiency of nourishment and starvation. Insufficiency of the aliments of calorification is the plainest evidence of starvation. The attendants upon it are the disappearance of glucose from the liver, and the fat, with the exception of that which is indispensable to the bones and brain, also disappears with not less constancy than rapidly. The connection between abstinence and the excessive loss of the aliments of calorification held in reserve is very evident. Repeated abstinence, like the partial deprivation of the aliments of calorification with respect to the wants of the organization and temperature, acts in the same way as entire abstinence; it is a question of time and accidents which alone distinguishes them.

Reiterated abstinence, like absolute abstinence, lessens the resources of the

economy for maintaining the temperature of 37.05 necessary for health; it renders it more difficult to re-establish the equilibrium when sudden cooling occurs; it modifies the nature of the residual matter or insoluble products which are eliminated from the economy; it diminishes the energy of the organs which concur to this elimination, and we may easily comprehend how it may predispose to the deposition of abnormal products or formations in organs whose functions are languishing, depositions which further contribute to increase the bad condition in which feebleness of functional action has placed these organs. We thus understand how reiterated abstinence renders reaction less sure and less decided after a person is chilled, and predisposes to the numerous diseases caused by cold. True starvation is the privation of all things essential to the maintenance of life and the preservation of health. What are these things necessary to the preservation of health in our cold or temperate regions? In the first place, varied and reparatory food, or, in other words, the richest aliments of calorification, such as fats, butter, and oil, such food being most valuable taken in sufficient quantities; excessive labour produces the same effects as are induced from insufficiency of the aliments of calorification. To this may be added want of proper clothing to support the temperature, for, as the temperature is lost, more aliment is required to sustain it, and hence a greater organic loss, want of protection by clothing therefore adds to the privation of aliments. This also is felt by the poorer classes. The sum, then, of that never-dying evil poverty, is: 1st, privation of good aliment of calorification; 2d, want of means of heating; 3d, want of flannel garments; and 4th, cold habitations, all of which resolve themselves into continued insufficiency of the means of resistance to external cold, proportioned to the wants of the organization.

The influence of poverty upon the development of phthisis in our great centres is fully appreciated by all who have examined the question. As an evidence may be cited the statistics of Geneva, by M. Marc d'Espine. Of 1000 deaths among paupers there were 233 from consumption, and of 1000 deaths among persons in easy circumstances there were only 68 from that disease.

Independently of the causes which have now been set forth there are numerous ways in which the same results may be induced, as from diseases which are persistent or which leave the patient in a languid condition, the wear of the forces of life after operations, in the female from lactation, mental distress, &c., while at the same time these may operate in the midst of luxury and abundance.

M. Bouchardat refers to the question with respect to the supposed greater prevalence of pulmonary consumption in cold than in hot climates. This view has been disputed by M. Ruz, who has studied the disease in the Island of Martinique. According to this learned observer, the creole women as well as mulattoes are decimated by the affection. A similar statement with respect to the blacks has been made by M. Laure. In the Southern States we have heard it stated that many negroes were victims of consumption, while this is a common affection among the whites. On the contrary, among the Esquimaux the disease is not known, as has been ascertained by Dr. Hayes. In connection with modes of life and the mortality from consumption thereby arising there are some interesting statements made by M. Bouchardat, all, however, conducing to the support of his positions.

M. Bouchardat appropriates separate chapters to the discussion of the several questions of the influence of age, sex, constitution, temperament, contagion, professions, reiterated excitation of the lungs, vaccination, inflammation of the pulmonary apparatus, diseases, clothing, climate, season, and hereditary transmission. To these we have not time or space to devote in this notice; it may be stated, however, that his observations are well worthy of study.

Upon the subject of the Prophylaxis and Hygiene of Pulmonary Consumption, as may be inferred, the rules he lays down originate in his interpretation of the causes which have been presented. The use of nutritious and heat-making food is strongly insisted upon in connection with air and exercise, while the functions of the skin and other organs are to be maintained.

The length of this notice precludes our entering upon the exposition of several other interesting essays contained in the supplement. They are upon the "Mucēdineous Parasites most Injurious to Man," "the Training of Pugilists," and the "Use of the Urometer." There may be found much interesting and

instructive material for thought and guidance in these essays; but we must close, again expressing our indebtedness to the indefatigable professor for his efforts to enable his associates in the healing art to keep pace with the advance of discovery and the progress of medical truth.

J. C.

ART. XX.—*Notes on the Despatch of Troops by Sea.* By CHARLES J. KIRWAN, Esq., L. R. C. S. I., etc., Assistant Surgeon H. M. 13th (Prince Albert's) Light Infantry. 8vo. pp. 110. Calcutta, 1859.

THE hygiene of the camp and of the ship has begun of late years to attract increased attention, though still not to that extent which it demands. To even the superficial thinker it must be evident that whatever has a tendency to secure the comfort, health, and vigour of the soldier, to preserve his life, and to sustain in him a buoyancy of spirits, whether in the barracks or in the field, on board the transport ship or within the fortress, even considered in a mere economic and military point of view, demands the serious consideration of every government. Whether it be one whose policy it is to keep up, in time of peace, an armed force, or, because being actually involved in war, it finds the necessity imposed upon it of raising up and maintaining troops for its defence.

Military discipline, however perfect, will not alone suffice to prepare for the contest an efficient soldiery. Bad health or actual sickness may render unavailable, in the hour of need, the services of the best appointed and most perfectly drilled army; while its exposure to various discomforts and petty annoyances which could have been effectually remedied by a little foresight, is calculated to impair its morale and detract from that *esprit de corps* so essential to its efficiency in the field.

The necessity often occurs for the transportation of troops to distant places by sea, consequently, the proper arrangement, economy, and discipline of transport ships becomes subjects of very serious consideration. In the work before us we are presented with the results of many years' experience of a British military surgeon of acknowledged position and talents in respect to this branch of military service.

From actual and repeated observation this gentleman has become convinced that, in consequence of a want of attention to the proper transporting of British troops on ship board, there not only takes place "an immense amount of destruction of the property of the soldier," and much temporary discomfort, but, in numerous cases, permanent loss of health, if not, perchance, of life also. The soldiers on board of transports may be sufficiently well and comfortably clad and fully fed on wholesome aliment; but neither one nor both will suffice to protect them from the baneful effects of exposure to cold and wet—the absence of suitable convenience for the strict cleanliness of both apparel and person, and the want of a proper alternation of exercise and rest, all of which are essential, at sea especially, to the preservation of a sound state of the mind as of the body. The suggestions he has made in reference to them, if fully and properly carried out, Assistant-Surgeon Kirwan believes to be adapted to render a phase in the economy of the soldier's life, as safe and comfortable as circumstances will allow, and to enable the troops on board a transport ship to enjoy and maintain a state of ease, health, and efficiency scarcely inferior to what they could enjoy in garrison on shore. They are all of them based upon personal observations made during the opportunities furnished to him in the course of actual service as surgeon for nine voyages with troops on board of transport ships.

In a separate chapter, Assistant-Surgeon Kirwan has indicated with great truth and clearness the proper position and duties of the medical officer in charge of the troops on ship board; the importance of his office, especially if he be viewed, as he should be, in the light of sanitary supervisor of the ship and men; the subjects that should be placed under his direction and control, and the necessity of immediate and implicit obedience to his directions in relation to such matters as he esteems essential for the preservation of the health and for the promotion of the true comfort of the entire ship's company, including officers, crew, and passengers.

It would be somewhat inconvenient for us to pass in review all the "notes" of Assistant-Surgeon Kirwan in respect to what is to be done when merchant vessels are employed for the transportation by sea of troops, in order, as far as it is possible, to adapt them for their office. We prefer to present a sketch of the model he has given of a ship expressly constructed for the despatch of troops by sea. By a careful examination of what he esteems to be the true ideal of a transport ship will be understood what must be done in order to bring the merchantman in the closest possible approximation to the model.

Various and weighty objections to the conveyance of troops in either men-of-war or merchant vessels, he remarks, might easily be adduced. Not the least of these, as regards most merchant ships, is their want of the necessary conveniences, while the employment of men-of-war for the transport of troops prevents them from exercising their proper functions. Independently of other advantages which would result in the substitution for these, of a class of ships expressly constructed for the transport service, one special recommendation in their favour would be found in the improved general health and more favourable state of *morale* or pluck in which the men would be landed: inasmuch as they would furnish what, in nine cases out of ten, cannot otherwise be done, appliances of a suitable description for the care of the sick and invalided, for preventing the spread of infectious or contagious diseases, for drying wet clothing in bad weather, for preserving at all times the cleanliness of the soldier's person and clothing, for the separation of married men and their families from the other portions of the ship's company, and for that continual drill so essential to the soldier-like bearing of the troops. From the want of these desiderata, as well as of means for the enforcement of strict discipline, the men are in danger, at the termination of a voyage, of being landed, a mob rather than a body of efficient soldiers.

The size of a vessel designed for the transport service should range from 2,500 to 3,000 tons register. It should have sufficient accommodations for a regiment of a thousand strong, with its proportion of women and children, and for stores and provisions to suffice for the longest period that may perchance elapse before the troops placed on board of her can be landed. The means of progression for a ship of this class, would be, in favourable weather, sails, but with the addition of a small steam power, from 250 to 300 horse, applied to a screw propeller, for the purpose of steaming through belts of calm, or of keeping way against light baffling head winds. During the prevalence of strong head winds the ordinary expedient of beating would, of course, have to be adopted.

The decks on which the troops are lodged should be free from every impediment to the free circulation of air. They should be provided with ports the same as the gun decks of a war ship, with the addition of the usual bull's eye port in the centre of the folding part, for the purposes of light and ventilation when it becomes necessary to close the larger ports. The upper deck should have as free a space as possible to allow of the parading and exercising the men. Immediately in front of the poop deck, which should occupy no more space than is necessary for the comfortable lodging and messing of about one hundred officers—naval and military—should stand the roof of the engine room, occupying the central portion of the deck. From hence to a point considerably in front of the main hatch, a space occurs where there are few obstructions, and which should be used as a parade and drill ground.

In front of the main hatch should follow a range of houses. 1st. A store-room, with shelves, in which supplies of every kind, for immediate use, could be stored. It should have a hatch communicating with the main stores in the hold, thus obviating the inconvenience of conveying boxes and barrels along the decks. 2d. An hospital and surgery; with shelves and everything essential for the proper and expeditious arrangement and dispensing of medicines. 3d. A school room, which might also serve as a library. 4th. Galleys or kitchens—divided into ship's, saloon, hospital and troops' departments; furnished with pumps communicating with the sea, and, in every part where the furnaces may be in the vicinity of the timbers, floored and lined with tiles. 5th. A wash-house, where the women of the regiment can be employed in washing and ironing the men's clothes. This room should be so constructed as to serve also to dry wet clothing in bad weather. That is to say—furnished with hooks on the walls and

ceiling-beams, and a steam drying apparatus, which should be supplied with the requisite amount of heat from the same fires which serve for the washing and cooking apparatus. The apartment to be provided with pumps, and tiled, like the kitchens—and in common with these latter should have the means also of discharging refuse water into the sea without deluging the decks in the vicinity. 6th. A lavatory for the men—Cleanliness of person and, consequently, the means for securing it, are essential to the preservation of troops on ship-board. 7th. A butcher's shop. This is an important appendage of a transport ship; preventing the filth and disgust caused by the practice of slaughtering animals on the deck, and furnishing a suitable place in which to hang up the meat until required for cooking.

These, with such other houses as may be found useful and for which there may remain room, would run forward so as to meet the roof of the forecabin; and the roofs of all combined, would form a spacious hurricane deck, broken only by the foremast and a few sky-lights and ventilating shafts, and furnish a fine promenade for the men. It should be kept clear of all lumber, with the exception, perhaps, of a few sheep pens.

Assistant Surgeon Kirwan suggests that from among the live stock taken on board a transport ship, hogs should be entirely excluded, in consequence of the amount of dirt and intolerable stench they create, and which cannot by any means be obviated. A supply of good, well-cured pork, hams, and bacon, will, he remarks, sufficiently compensate for the absence of the live animal, especially when we consider the nuisance to which its presence gives rise. The perfection to which the art of preserving milk has now been brought induces the author to believe that the presence of a milch cow might also be dispensed with. From the quantity of milk the animal furnishes at sea being very small, and the rapidity with which she sinks into a most miserable condition—motives of both economy and humanity combine in pronouncing her exclusion from on ship-board proper.

In addition to the foregoing hints in respect to the kind of arrangements and appliances requisite on board of ships destined for the transport of troops, much, Mr. Kirwan remarks, might be said in relation to the size, warming, ventilation and conveniences of the cabins allotted to officers, their mess and sitting-rooms. In the parts of the ship allotted to the troops, mention might be made of proper companion ladders, distinct from the hatchways—of suitable ventilating apparatus, and of other matters which, though apparently trivial when singly considered, are of vast importance when viewed as integral parts of a complete system of means having for its end, as well the personal comforts of troops *en route* by sea, as their maintenance in a sound condition of moral and physical health.

To enumerate every particular would be, as our author remarks, "to write out a specification for a well-appointed troop ship, a task which could be better executed by the naval architect, under the instructions of the officer whose province it may be to determine the class of vessels required, and the amount of accommodation to be allowed. Suffice it to say, he adds, that the ship should be of the first class, whatever her tonnage, with every improvement in naval architecture which may have stood the test of careful experiment, and with every appliance for the health and comfort of the men with which modern science has made us acquainted, so long as these do not tend to degenerate from comfort into luxury."

In reference to those particulars connected with the regulation and police of a transport ship, which, according to Assistant Surgeon Kirwan, should be promptly enforced upon the recommendation or direction of the surgeon in charge of the troops, we present the following brief enumeration: The airing of the bedding as often, and in such manner as the medical officer may direct. The cleansing of the upper decks as often as he shall consider them dirty. The prompt removal or, what he shall esteem, the proper disposition of all articles which he considers likely to have a pernicious influence upon the atmosphere of the ship. The clearing out, cleansing and fumigation of sleeping places to his satisfaction. The spreading of awnings where and whenever he shall consider them necessary. The indication of the times at which parades, punishments, etc. shall take place. The prohibition of the issue of rations which are consi-

dered by him to be bad, until they have been examined by a board of senior officers. The working of the ventilating apparatus at such times as he shall consider necessary for maintaining the purity of the air between decks. Attention, also, should be required to his recommendations regarding cooking, cleanliness of ship, and of the persons and clothing of the men, and as far as possible, also, for the prevention of accidents.

On the subject of *night watches*, Mr. Kirwan remarks as follows:—

“However beneficial it may be that troops when on board ship should be as much on deck as possible, the propriety of the four hours watches, night and day, is open to question. During the day there is nothing to be apprehended—but, from eight in the evening until sunrise is a period when the exposure to which those on watch are subjected is particularly prejudicial, and a fertile cause of sickness on board troop ships. Men are roused from their sleep in the sweltering atmosphere of between decks and hurried up into the damp and chilly night air. If the night be fine they lie down upon the decks, which are always more or less damp, and when the night is rainy they crowd together under some imperfect shelter, and get to some extent wet. Upon going below, the chances are that they lie down in their wet clothing, and sickness ensues. Would it not be better to discontinue altogether the soldier’s watches on ship-board from eight in the evening until sunrise? Troops are not of the slightest use on deck at night, and the benefit which is supposed to accrue from their absence from between decks, is more than counterbalanced by the sickness which night exposure engenders. That turning a man out of his warm hammock at midnight to sleep, and sleep he will, on a damp open deck is prejudicial to health there cannot be a doubt. Many a soldier invalided for rheumatism and chest affections has, in all probability, laid the foundation of his disabilities while performing night watch on board a troop ship.

“A strong guard in a round-house on deck would be sufficient for all purposes, and as few sentries should be posted at night as possible. The cook-houses should be properly secured so as to need none, neither should any sentry be needed over the meat tubs, as these can be securely locked. The men being all asleep below, neither lights or sentries are required between decks. The only lights necessary would be in the hospital, and a safety-lamp with the guard in the round-house.”

We cannot spare time to notice the very admirable hints presented in Chapter VI. on the victualling of troop ships—those on the management of the clothing, bedding, etc.; nor the sketch given in Chapter X., of a proper administration of the transport service—embracing the establishment of a special branch or department having for its duties the superintendence of all details connected with the embarking and disembarking of troops wherever destined.

The whole, in fact, of Assistant-Surgeon Kirwan’s “notes” are replete with valuable suggestions, presenting the germs of vast improvements—leading in their development to the systematizing and simplifying of the transportation of troops by sea—rendering the service more prompt and efficient, and less destructive of the health, lives, and morale of the soldiers, and, at the same time, attended with less expense and less waste of public property.

D. F. C.

ART. XXI.—*The Causes and Treatment of Imperfect Digestion.* By ARTHUR LEARED, M. D., Oxon., M. R. I. A.; Member of the Royal College of Physicians, London; Physician to the Great Northern Hospital, and to the Royal Infirmary for Diseases of the Chest; Lecturer on the Practice of Medicine at the School of Medicine adjoining St. George’s Hospital; Physician to the British Hospital at Smyrna during the Russian War, etc. Second edition. London: John Churchill, 1861. 12mo. pp. 218.

THE fact that a second edition of this useful little work has been issued in the short space of one year after the publication of the first, is good evidence that its merits have been appreciated by the medical public.

The author introduces his remarks upon imperfect digestion with a concise and, in the main, accurate account of the physiology of this complex function. In chapters two and three he briefly enumerates the causes and symptoms of dyspepsia; and in the next three chapters describes, in a graphic and eminently practical manner, accidental or temporary, and habitual or chronic dyspepsia. His own observations, he tells us, have led him to recognize five kinds of habitual, digestive derangements, which he names as follows; partly according to the essential nature of the affections, and partly from certain symptoms which characterize them:—

1. *Slow digestion*—or simple dyspepsia.
2. *Unlue acidity in digestion*—dyspepsia with acidity.
3. *Painful digestion*—dyspepsia with gastric pain; and frequently soreness.
4. *Foul digestion*—dyspepsia with fetid eructations.
5. *Impaired digestion, with mental disturbance*—dyspepsia in which mind symptoms predominate.

In the treatment of dyspepsia, dietetic or hygienic regulations are, undoubtedly, far more important in their results than the administration of medicinal agents. Although no diseases are more capable of receiving benefit from such agents than the functional disorders of the stomach, yet it is well known that this benefit is more slowly procured, and is less likely to be permanent if the employment of drugs be not simultaneously associated with the proper dietetic management of the disease under question. Our author very judiciously, therefore, devotes an entire chapter to the consideration of the quantity and quality of the food, the times of eating, the modes of cooking, &c. appropriate to the dyspeptic patient. After commenting upon the relative digestibility and nutritive value of different alimentary substances, he arranges them in three groups, in the order of their capability of being digested.

“First Group.—Articles Easy of Digestion.”

“Mutton, venison, hunted hare, sweet-bread, chicken, young pigeon, partridge, pheasant, grouse, beef-tea, mutton-broth, milk.

“Whiting, turbot, flounder, sole.

“Stale-bread, biseuit, rice, tapioca, sago, arrowroot.

“Asparagus, sea-kale, French beans, cauliflower.

“Baked apple, oranges, grapes, strawberries.

“Toast-water, black tea, claret, sherry.

“Second Group.—Articles Moderately Easy of Digestion.”

“Beef, lamb, rabbit, turkey, duck, wild water-fowl in general, woodcock, snipe; soups in general, eggs (not hard-boiled), butter.

“Cod, haddock, pike, trout, raw oysters.

“Potatoes, turneps, cabbage, spinach, artichoke, raw vegetables, especially lettuce; apples, peaches, apricots, pine-apple, gooseberries, currants, raspberries, mulberries; bread and other farinaceous puddings; jelly, marmalade, rhubarb, and cooked fruits in general.

“Cocoa, coffee, malt drinks, port wine.

“Third Group.—Articles Difficult of Digestion.”

“Pork,* veal,* goose; the liver, heart, kidney, and brains of animals; salt meat, sausage, hashed or stewed meats.*

“Mackerel,* eels, salmon, herring, sprat, skate, halibut, salted fish in general, lobster, crab, prawn, shrimps, cray-fish, mussels,* cockles, scallops, and oysters, cooked.

“Olive oil, melted butter, hard-boiled eggs, cheese; new bread, muffins, and buttered toast; pastry in general,* suet puddings,* pancake, custards.

“Nuts of all kinds,* pears, plums, cherries, dried fruits; cucumber,* beetroot, Jerusalem artichoke, onion, carrot, parsnip, peas, beans, mushrooms, pickles.

“Chocolate, champagne, liqueurs.”

“The first of these groups contains the articles most suitable for the dyspeptic, the second those only admissible in less severe cases, and the third may be con-

sidered a dietetic index expurgatorius, since few of the articles comprised in it should ever be taken by the invalid; while those to which an asterisk is attached should be regarded by him more in the light of poison than food."

The list of medicines used in the treatment of dyspepsia is a large one. It embraces the alkalies, certain alkaline earths, various mineral and vegetable acids, the vegetable bitters and aromatics, strychnia, cod-liver oil, the different chalybeate preparations, ipecacuanha in small doses, various essential oils, brandy, sulphuric ether, pepsine, certain salts of bismuth, silver and zinc, the compounds of mercury, opiates, hydrocyanic and carbonic acids, chloroform, some astringents, charcoal, hyposulphite of lime, the waters of certain ferruginous and other mineral springs, and lastly purgatives.

Alkalies generally exert but a temporary influence over dyspepsia. They are most useful in cases of acid dyspepsia accompanied with the presence of large quantities of lithic acid or lithates in the urine. Sometimes their prolonged use increases acidity by accelerating the flow of gastric juice.¹ Taken in excess they more or less interfere with digestion, by neutralizing the gastric acid and inducing a condition of the blood analogous to that produced by scurvy. They should be suspended as soon as phosphates appear in the urine. When the liver is inactive, and the tongue is furred or coated, soda is to be preferred to potash. When, on the contrary, the kidneys are sluggish and lithic deposits prevail in the urine, potash is indicated instead of soda. If, in conjunction with acidity, there is much irritability of stomach, magnesia will be found preferable to either soda or potash. It is an efficient remedy, according to our author, in gastrodynia; and is often valuable in combination with bismuth, in cases of dyspepsia with epigastric tenderness. In severe dyspepsia attended with nausea and vomiting, when solid food can hardly be taken, and in cases of pyrosis with acidity, lime-water may be employed. Dyspepsia, accompanied with spasmodic affections of the stomach, finds in ammonia an excellent and speedy remedy. In anæmic patients suffering from acidity of the stomach, and in cases of slow digestion when the tongue is pale and flabby the mineral acids are highly useful, especially the hydrochloric and nitro-hydrochloric. Lactic acid, so highly recommended by some practitioners, has been found by Dr. Leared to have no advantages over the other acids. The acid treatment should be discontinued as soon as uric acid or the urates in any considerable quantity are deposited in the urine. Our author thinks that the mineral acids act indirectly as antacids by improving the condition of the stomach. Without denying their tonic influence upon the stomach, we are inclined to believe that their antacid effect is explained by the fact, pointed out by Beaumont, Blondlot, Bernard and others, that when acids are introduced into the stomach the flow of gastric juice in a given time is sensibly diminished.

"Bitters are useful in most cases of dyspepsia in which the stomach partakes in a general debility of the system. They are well adapted for the phlegmatic, and for persons of languid circulation, not so much so for the plethoric, and those of the inflammatory tendency. But considerable differences are traceable in the nature and adaptations of this class of medicines.

"In simple slowness of digestion bitters are frequently very useful. In painful digestion, when the pain has been alleviated or removed by other means, they are generally advantageous. In acid dyspepsia, accompanied by debility, they are useful in combination with alkalies or mineral acids. But in the acid dyspepsia so frequently connected with latent gout, and in which there is a feverish tendency, bitters are often hurtful. In the intervals between the attacks of foul dyspepsia bitters are available."

After commenting upon the therapeutic properties of calumba, cascarilla, quassia, gentian, chiretta, the leaves of the marsh trefoil (*Menyanthes trifoliata*), the rind of the Seville orange, chamomile flowers, quinine, &c., and indicating the varieties of dyspepsia in which they should severally be used, Dr. Leared proceeds to advocate, in the following words, the employment of strychnia in the disease under consideration:—

"Speaking from extensive experience, I know no single medicine of more

¹ C. Bernard, Medical Times and Gazette, August 11, 1860.

value in this disease. Strychnia is particularly indicated in dyspepsia attended with nervous debility. In that numerous class of cases in which abnormal sensations in various parts of the body—as the throat, the head, or the limbs—are experienced, it will generally be found useful. It is the best tonic for the class in which mental symptoms predominate. But it also possesses excellent local effects, and acts by increasing the tone of the muscular coats of the stomach and intestines. When these coats are relaxed gases are generated, mainly owing to the retardation of the aliment in the cavities. No remedy has, in my hands, proved so permanently effectual as strychnia against this inconvenience. * * *

"Strychnia should always be given in solution to insure its effective diffusion in the stomach, and for sake of greater certainty in apportioning the dose. A proportion of some acid, as a drachm of dilute acetic acid to a grain of strychnia, should be prescribed with it, as the action of strychnia is greatly favoured by association with acids. The discrepant accounts given of it, in all probability depend on different degrees of acidity in the stomachs into which solid strychnia was introduced. As a bitter tonic, the fortieth part of a grain is a sufficient dose. When it is desired to insure specific action, the twentieth part of a grain may be given; but it will seldom be necessary to exceed this, as the good effects of strychnia on the gastro-intestinal muscular fibres are usually secured by a quantity that does not affect the voluntary muscles."

In many cases of painful digestion, attended with water-brash and heart-burn, cod-liver oil is of the greatest benefit. According to Dr. Leared, cardialgia or heart burn is produced by the generation of a small quantity of an impure, acrid butyric acid, which rises to the surface of the contents of the stomach, is brought to the cardia by the motions of this organ, instinctively rejected into the œsophagus, and transmitted to the mouth accompanied by the sensations of heart-burn. The miscibility of fat with butyric acid, he thinks, explains the relief of heart-burn by cod-liver oil. It acts by diluting the acid. Where the oil itself produces nausea, foul eructations and epigastric pain, it may, with advantage, be replaced by olein freshly prepared from the oil.

The preparations of iron best suited for the dyspeptic stomach and bowels are the ammonio-citrate, the ammonio-tartrate and the lactate. In atonic pyrosis resort should be had to the perntrate and persulphate of iron and ammonia, or iron alone, on account of their astringent qualities.

In certain cases of slow digestion ipecacuanha, taken shortly before meals, often proves very useful. Dr. Budd thinks that it acts by increasing the secretion of gastric juice; Dr. Leared attributes its good effects to an acceleration of the gastric movements.

After giving it a fair trial, our author concludes that pepsin is of little or no use in dyspepsia. For pain after eating he recommends the nitrate and subcarbonate of bismuth; giving the preference, however, to the latter of these two salts. When subacute gastritis is the cause of the pain, bismuth will be injurious. When we wish to combine astringent with sedative effects, as in water-brash, and in cases of intestinal dyspepsia with a tendency to diarrhoea, the nitrate is to be preferred. In those cases of painful digestion in which, owing to the great irritability of the stomach, bismuth cannot be taken in sufficient doses, the nitrate of silver often has a happy effect. Dr. Leared considers oxide of silver an inferior remedy, but thinks that it may be occasionally substituted with advantage for the salts of bismuth. Chronic headaches, dependent on dyspepsia, are often benefited by a course of nitrate of silver. The most useful sedatives in painful digestion, and in gastrodynia and neuralgic affections of the stomach are opiates, hydrocyanic acid and chloroform. Opium, in some form, is the remedy for diarrhoea occurring after meals. Our author regards tannic acid in solution as the best of all the astringents in the treatment of dyspepsia complicated with water-brash. The chloride of calcium he regards as quite as efficacious in vomiting caused by sarcina as the hyposulphite of lime advocated by Dr. Jenner.

In an appendix to the work before us the reader will find an account of some experiments to determine the proximate cause of copious and sudden flatulence, together with observations and experiments upon the nature and origin of heart-burn, and the employment of Boudault's pepsine as a digestive agent.

As a useful *résumé* of our knowledge of the nature, causes, and treatment of a most troublesome affection, we recommend this work to the favourable notice of our readers.

J. A. M.

ART. XXII.—*On the Parasitic Affections of the Skin.* By T. McCALL ANDERSON, M. D., Fellow of the Faculty of Physicians and Surgeons, Physician to the Dispensary for Skin Diseases, Physician to the Deaf and Dumb Institution, Glasgow, etc. London, John Churchill, 1861. 8vo. pp. 146.

This is a very useful practical monograph. In this country, quite as much as in Great Britain, cutaneous affections are, as subjects of accurate study, comparatively neglected. In France and Germany it is otherwise. There large special hospitals afford opportunities, such as ought to exist in every country, for the close investigation of these important maladies.

Dr. Anderson opens his book with a brief defence of, or argument for, special hospitals.

"Who can glance, were it but for a moment, at the progress in the different branches of medicine which has been exhibited during the last few years, without acknowledging that it is to the special study of particular complaints that this progress is to be attributed. And is it not a curious thing that, while hundreds of practitioners call out loudly against specialities, the majority make exceptions in favour of one or two classes of disease, which, according to them, fall to be appropriately treated in special institutions.

"This was very well illustrated a few months ago when a meeting of the metropolitan counties branch of the British Medical Association was called for the purpose of considering the subject of special hospitals. The gentlemen whom I am about to mention all condemned special institutions.

"Dr. A. P. Stewart, however, had no objection to the establishment of hospitals for consumption. Mr. Henry Thomson agreed as to the usefulness of hospitals for diseases of children and for mental diseases. Dr. Seaton thought that hospitals for the treatment of epilepsy were necessary. While Mr. Webber did not know that there was any great objection to hospitals for deformities—for skin diseases—for diseases of the eye and of the chest.

"So that these gentlemen, while stating themselves adverse to the establishment of special institutions, made exceptions in favour of hospitals for consumption, diseases of children, mental diseases, deformities, skin diseases, eye diseases, chest diseases, and epilepsy."

The parasitic diseases of the skin are enumerated by Dr. Anderson, as—

A. Cutaneous affections due to the presence of a *vegetable* parasite, viz: I. Favus. II. Tinea Tonsurans, of which there are three varieties: 1. Herpes Circinatus; 2. Sycosis; 3. Herpes Tonsurans. III. Alopecia Areata. IV. Pityriasis Versicolor.

B. Cutaneous affections due to the presence of an *animal* parasite: I. Phthiriasis. II. Scabies.

In regard to the four above-named affections, in which the parasite is a vegetable organism, Dr. Anderson alludes, without approval, to the opinion of Hebra, that they are all produced by one and the same fungous growth, varying in apparent characters according to its stage of development and the particular structure of the skin attacked.

The second, third, and fourth chapters are occupied with *favus*. Our author's view is very positive in regard to the actual dependence of this, as well as the other parasitic diseases, upon the presence of the parasite. He asserts that the opinion held by many that the cutaneous disease is owing to deranged nutrition, the parasitic growth being a secondary concomitant or result, is "altogether untenable in the present state of our knowledge." As to favus, he says—

"The discoveries of the microscope, the results of the inoculation of the parasite on man as well as on the lower animals and plants, the contagious nature of the disease, and the astonishing and never-failing success of the treatment,

form an ample refutation to the idea of its being a constitutional disease. There can be no doubt that as the advances which have been made in our knowledge of this subject, thanks to the discoveries of our continental brethren, become more and more widely disseminated, favus will come to be looked upon as a comparatively trifling disease, and instances will cease to be met with of poor creatures frequenting our dispensaries, their scalps covered with crusts or changed into parchment-like structures, and their heads denuded of hair, objects of disgust to themselves and of loathing to those around them."

Favus is then described, fully, as it attacks the orifices of the hair-follicles, the epidermis, and the nails. Of the first of these forms (*favus pilaris*), Dr. Anderson considers *favus lupinosa*, *scutellata*, and *squarrosa*, to be only different degrees or stages; the first being the earliest and most distinct, the last the most confluent. The *favus cup* is said *always* to develop itself in the orifice of a hair-follicle. Bazin declares that he discovered a rudimentary hair connected with such a cup even on the glans penis.

Favus of the epidermis is much rarer than that of the hair, and is almost invariably found to be conjoined with the latter. Instead of the cups, somewhat variable scaly-like crusts form, scattered upon a slightly reddened epiderm; the crusts being white, marked by yellow patches, in which the favus matter is detected in abundance.

Favus unguium is rare, and also secondary. The spores germinate beneath the nail, which becomes thickened, and gradually more and more yellow as the favus matter shines through.

The *inoculability* of the disease is held by our author to prove the dependence of favus directly upon the parasitic *achorion*. Bennett, Hebra, Remak, Vogel, Bazin, Gruby, and Delfis, have caused the transference of the affection from one person to another. The average time of incubation appears to be about forty days. Draper, of New York, communicated the account of a curious case to Bazin, in which favus was first transmitted from a mouse to a cat, and then from the latter to two infants. Instances of the ready contagion of this disease are often met with in the St. Louis Hospital, and other large hospitals, for skin diseases.

While dirtiness is the most potent predisposing cause, and the application of the *achorion Schönleini* the only exciting cause of favus, it appears to us to be going beyond his own intended meaning for our author to speak of dirt as the *sole* predisposing cause (p. 27). The whole tenor of the book, however, is consistent in depreciating the importance of constitutional causes or conditions in connection with parasitic diseases of the skin; and, consequently, in making a low estimate of the value of constitutional treatment. Dr. Anderson admits that a general disease, typhoid fever, for example, has a manifest influence upon the favus affection. He also grants that "some medicines, by changing the qualities of the blood, may act as poisons to the parasite, or, to use a milder expression, may change the nature of the soil which had previously been favourable to its germination." He affirms, however, that clinical examples of this are rare.

The basis of his treatment, then, is local and *paracidal*. The necessity of first *removing the hairs* of the part affected is strongly urged. Shaving the head will not suffice. Extraction is difficult on account of the brittleness of the hairs. Of the three modes mentioned, by the fingers, by forceps, and by the *calotte*, that by forceps is recommended. In the St. Louis Hospital *épilateurs* are employed whose whole duty consists in extracting the hairs of patients affected with parasitic diseases. The *calotte* is a barbarous appliance, although still considerably used in France. It consists of a horrible compound of rye meal, carbonate of copper, pitch, rosin, and antimonial ethiops, made into a plaster, which is laid in strips upon the head; this in a few days being dragged forcibly off. Even death has sometimes followed this scalping process. Yet it is adopted by Baumés, of Lyons, and by the Sisters of Charity at Toulouse, to whom alone, by law, the whole care of children suffering with favus is confided. In Paris, too, a similar plan is employed by the Frères Mahon, who, although notorious quacks, are still retained upon the medical staff of the hospital of St. Louis.

Immediately upon the removal of the hair parasiticide applications are to be

made. Bichloride of mercury (two grains to the ounce of water, with little alcohol) is generally preferred. Sulphur, turpeth mineral, and oil of cade, are also efficient in the form of ointment. Oil of cade is not, that we are aware of, used in this country; it is a tarry preparation made either from the common juniper or the juniperus excedrus, and is most resorted to in France.

Chapters V., VI., and VII., are devoted to Tinea Tonsurans. Dr. Anderson's classification includes, under this head, three affections: herpes circinatus, herpes tonsurans, and sycosis. All of these, he avers, are due to the presence of the same parasite, the *trichophyton*. The authority of Robin, Bazin, and Hardy, is referred to upon this point; while our author has confirmed clinically the declaration first made by Bazin, that these three affections are often met in connection with one another, and that one variety is capable of giving rise to another by contagion.

The *trichophyton* (of which, as of the other cutaneous parasites, a good woodcut illustrates the description) is stated to consist of an enormous number of oval spores, about 1-7000th of an inch in diameter, and a small proportion of minute tubes. In mass, the parasitic matter is of a pure white colour and powdery aspect, known from epidermic scales by the latter being yellowish or grayish, and much less in the form of powder.

The symptomatology of the three affections is described as being as nearly identical as difference of site will allow. In all—

“The first stage is chiefly characterized by the remarkably circular form of the eruptions, and by the alteration of the hairs; the second, by the change of the colour of the skin of the affected parts, and by the presence of the white powdery fungus on the epidermis and on the broken hairs; and the third, by the inflammation and suppuration of the hair-follicles and surrounding tissues, and, in consequence, by the disappearance of the fungus, alopecia (or the formation of hairs very much altered or diseased), and secondary eruptions. These three stages are, however, not met with in all the varieties equally.”

Dr. Anderson repudiates, therefore, the opinion of Hebra, and many others, that there is a non-parasitic herpes circinatus. He believes, also, that herpes iris is a mere variation of the *trichophyton* disease. He names *erythema circinatum* and *erythema iris* as distinct from the parasitic affection—the difference being chiefly made certain by the microscope. In the diagnosis, however, he considers the elevation of the red circles and the furfuraceous desquamation, in herpes circinatus, to be important.

Sycosis is made out and distinguished from impetigo by the following diagnostic signs:—

“The erythematous spots and circles among the hairs, the rings of herpes circinatus on the neck, wrist, and other parts, and the raspberry-looking tubercles, give unmistakable evidence of the affection when these symptoms are present; while the alteration of the hairs, the patches of alopecia, and the discovery of the parasite with the microscope, render the picture complete.”

The subsequent alteration of the parasite through the influence of suppuration may explain the error of Gruby in describing another vegetation (microsporou mentagrophytes) as the cause of sycosis, as well as that of Hebra, who looks upon the parasite as not essential but secondary or accidental to the disease.

The diagnosis of herpes tonsurans is especially easy in the second stage, when the hairs are broken off close to the skin and are covered by the grayish-white parasitic dust. The hairs are often very much thickened and their ends ragged when broken.

The *contagiousness* of these three forms of tinea follows, of course, as a corollary upon the proof of their parasitic nature; and, as Dr. Anderson asserts, it has also been clinically established.

In treatment, the parasitocidal plan recommended for favus is applicable equally to tinea, although depilation is less universally required. Our author has very little confidence in the curative power of arsenic or cod-liver oil in any of the parasitic affections.

Alopecia arcata, dealt with in Chapter VIII., may be defined as consisting of patches of baldness from atrophy of the hair bulbs; this atrophy being due to the presence of the *microsporou Audouini*. Startin, Hutchinson, and Jenner,

admit the atrophy, but deny the importance of the fungus. The contagiousness of alopecia areata is very positively denied by some authorities. Dr. Anderson thinks he has seen evidences of it.

Pityriasis versicolor is treated of in Chapter IX. It is a pity that the term *chloasma* has not been universally adopted for this affection (characterized by patches of discoloration owing to the grape-cluster-like *microsporon furfur*), to distinguish it from pityriasis proper. We regret, also, that, as Dr. Anderson has chosen to use a term so nearly identical with the same for *morbus pediculus*, he did not give it the equally correct spelling: phtheiri^{as}is, instead of phthiri^{as}is. In sympathy for our juniors, at least, we must protest against any unnecessary complication or obscurity in the nomenclature of skin diseases, already difficult enough.

Plica polonica is not recognized by our author as a special disease. Like Hebra, he believes it to be nothing more than a dirty skin, upon which the hair is matted from neglect; this affording conditions for the detention of spores of fungi floating through the air. We should depend more positively upon this opinion if it were, like most of those in this book, supported by the author's own immediate observations.

The last three chapters of the volume contain a full and interesting account of scabies. In regard to its symptomatology he objects with emphasis to the erroneous account given in popular works of the ordinary scabious eruption; which, instead of being most frequently *vesicular*, as it is described, is much more often papular or pruriginous, or even ecchymatous; although, as it depends chiefly upon scratching, it may assume almost any character.

In the treatment of scabies, Hardy's plan, by which the disease may be eradicated in a single day, is considered by the author as rather inconvenient or undesirable in private practice. It consists in rubbing the patient all over for half an hour with black soap, after which he is kept the same length of time in a warm-bath, and then anointed with a modification of the pomade of Helmerich, as follows: R—Subcarbonatis potassæ, ʒj; sulphuris, ʒij; axungiæ, ʒxij. The course is ended by a second warm bath the next day to remove the ointment.

Vleminckz, of Belgium, recommends a milder preparation, viz.: R—Calcis, ʒss; sulphuris, ʒj; aquæ, ʒviiij. This is boiled, stirred, and passed through a sieve before using.

A page upon the *acarus folliculorum*, containing a denial of the importance of this parasite in the production of acne, terminates Dr. Anderson's book, with which we think all readers interested in its subject will be pleased, even if they do not accept all his conclusions.

H. H.

ART. XXIII.—*Epileptic and other Convulsive Affections of the Nervous System; their Pathology and Treatment.* By CHARLES BLAND RADCLIFFE, M. D., etc. etc. Third edition. London, 1861. 12mo. pp. 312.

THE first two editions of the work of Dr. Radcliffe were very fully noticed by us at the time of their appearance respectively. In the one before us the entire treatise has been, in the words of the author, "so re-written and re-cast," as to make it, to a very great extent, "a new book rather than a new edition." In it Dr. R. has incorporated the Gulstonian Lectures, delivered by him at the Royal College of Physicians, in the spring of 1860; the theme of which, together with all the author's additional thought and experience of the last three years, is directed to the enforcement and illustration of the views promulgated by him in reference to the physiology of muscular action, and the pathology thence deduced of the convulsive affections generally, from the simplest tremor to the most violent epileptic seizure.

Our readers are aware that, according to Dr. R., relaxation or elongation is the active state of the muscles, while contraction or shortening is their passive condition. He believes that there is a condition of polarity in the living muscle

during relaxation, by which the state of *relaxation is produced*, and that the state of contraction is nothing more than the necessary result of the muscle being released from its condition of polarity, and left to the operation of the attractive force which is inherent in the physical constitution of the muscular molecules. The transitory contractions which are said to belong to that form of contractility usually denominated irritability, Dr. R. supposes to occur during transitory lulls in the polar action which antagonizes contraction; while the prolonged contraction of *rigor mortis*, which is referred to that form of contractility denominated *tonicity*, he believes to derive its characteristic persistency from the fact that the polar action which antagonizes contraction is then at an end.

Dr. R. denies that the blood is in any sense to be viewed as a direct cause of muscular contraction, whether this be manifested normally or abnormally; on the contrary, it seems to him that the influence of the blood is exercised, most commonly, if not invariably, in producing the opposite state of relaxation.

"There is," he remarks, "every reason to believe that the living nerve consists of an infinite number of electro-motive molecules, and that the nerve-current is the sum of the action of these molecules. There is every reason to believe that the activity of the nerve-current is in proportion to the number and energy of these molecules, and that any change of the nerve-current in any part of the nerve will make itself felt, without loss of time, in every part of the nerve, provided the nerve retain its properties as a conductor. There is every reason to believe, also, that the nerve-current cannot begin or end, or experience any change of intensity, without immediately giving rise to the development of instantaneous currents of high tension in the nerve itself (*extra currents*), and in the neighbourhood of the nerve (induced currents). In short, there is every reason to believe that the nerve-current will behave in all respects like the galvanic current, for these two currents are analogous, if not identical, in all their characters."

"The view which is here taken of the operation of electricity in muscular action is indeed," he remarks in a later section, "one which supports and explains what has been already said respecting the operation of blood and nervous influence in muscular motion. That the blood should antagonize contraction is to be expected if the nerve and muscular currents have the power of producing this effect; for it may be supposed that the chemical changes which are wrought by arterial blood in muscle and nerve are as inseparable from the nerve and muscular currents, as the chemical changes in the galvanic cell are inseparable from the galvanic current. And that nervous influence should antagonize contraction, is, assuredly, no matter of wonder; if this be the action of the nerve-current. Nay, if this be the action of the nerve-current, it follows that nervous influence must antagonize contraction, for the nerve-current is a component part of, and the most intelligible idea in, nervous influence. Electrically considered, indeed, the operation of nervous influence in muscular motion becomes not a little simplified. Thus, for example, it is not difficult to understand that convulsion may be brought about by arresting the supply of arterial blood to one or more of the nervous centres of the head, and that in the case of death this convulsion should be separated from the final contraction of *rigor mortis*, by an interval of relaxation. For may it not be assumed—that the electrical activity of these centres will fail when arterial blood is withheld—that this failure will tell upon the whole nervous system, and set up a movement in the nerve-current which will lead to the induction of instantaneous currents of high tension in the muscles and elsewhere in the neighbourhood of the nerves—that a succession of these induced currents will be developed so long as the nerve-current is oscillating towards the lower level, which it is obliged to settle into for want of arterial blood—that convulsion will result from the action of these induced currents upon the muscular fibres—that relaxation will follow the convulsion when the induced currents cease to be developed, because the muscles will be then left to the undisturbed operation of the muscular and nerve-currents—and that *rigor mortis* will come on eventually, because these currents are then extinguished? And does not the fact that an incitable muscle is more prone to contract when it is cut off from the influence of the nervous centres, or when it is deprived of a portion of its proper supply of blood, become somewhat less unin-

telligible when the idea of the nerve-current is substituted for that of nervous influence, and when the arterial blood is supposed to act by producing the nerve and muscular currents? For if these currents antagonize contraction, it will follow, as a matter of course, that there must be a greater proneness to contraction when a large amount of nerve-current is cut off by separating the muscles more or less completely from the nervous centres, or when a diminished supply of arterial blood necessitates a more scanty development of the nerve and muscular currents."

The foregoing views are not merely stated, by Dr. R., but are carefully compared with the facts in our possession bearing upon the physiology of muscular action, and its several abnormal conditions—tremor, simple convulsion, epileptiform convulsion, and spasm—and with the results of the action upon the muscles, of electricity and galvanism, as tested by a series of apparently well devised and carefully conducted experiments. If he can not be said to have established, beyond a reasonable doubt, the leading physiological and pathological principles for which he contends, it must, at least, be confessed that he has placed them in a very favourable point of view and clothed them with a degree of probability greater than would be supposed possible at first sight.

As a necessary deduction from his theory of muscular action, Dr. R. refers all of the convulsive and spasmodic affections to defective or disturbed innervation. Among their predisposing causes he includes everything which interferes with perfect hæmatosis—by the interruption of digestion and nutrition, of the regular action of the various excretory organs, and of the freedom of respiration. Everything, in fact, which has a tendency to impair the crasis of the arterial blood, and thus diminish or remove the natural excitant of the nervous centres—the proper sustainer of the normal condition of the nerve-currents. He recognizes, also, the fact that convulsions are the result of various diseases, all of which will be found, he attempts to show, to impair the functional activity of the nervous centres, either by reducing in them a vigorous circulation of arterial blood, or by causing an actual lesion of their organization.

As in the different varieties of tremor and convulsion, so, also, in the different varieties of spasm Dr. R. has attempted to show, from a careful review of all the facts connected with their history and pathological anatomy, that the common supposition that the muscles are provoked to take on this condition of morbid contraction by excessive stimulation of one kind or other is erroneous, but that their state of spasticity is due to want of vigour in the circulation and defective innervation.

The entire chapter on the treatment of ordinary epilepsy is replete with important suggestions of a strictly practical character, presented as the results of actual experience. It furnishes the groundwork of the therapeutics adapted to all the forms of convulsion and spasm. Every portion of it is of interest to the practitioner: we can only afford room, however, for the important suggestions thrown out by the author at its close.

Reflecting, Dr. R. remarks, upon the physiological and pathological premises laid down, the great desideratum in a case of epilepsy would seem to be the production of a more vigorous and sustained action of the nervous centres, convulsion being, according to these premises, the consequence of a failure in this action. Reflecting upon what he has said respecting the beneficial influence of cod-liver oil in epilepsy, and upon the possibility that this remedy may do good by furnishing one of the materials, namely, the fat, which is necessary to the full nutrition of the nervous tissue; it may be readily supposed that the remedy which has yet to be applied in cases of convulsion, is one which will supply in the first place this kind of food to the nervous system. But, he inquires, may there not be some other material besides fat or oil which may be wanted to secure the healthy nutrition of the nervous system? However mysterious are the properties of that system, this much is plain enough—that the nervous tissue cannot exist independently of proper nutrition, and that any means which will merely rouse its action, without at the same time providing for its nutrition, must in the end do harm, and not good. On examining the chemical constitution of nervous tissue, it is evident that phosphorus is a very important ingredient. It is evident, too, that the amount of fat and phosphorus has some

relation to the activity of the nervous centres, for both these ingredients increase from infancy to adult age, and decrease afterwards, as the influence of advancing age tells upon the system. "The facts, indeed, are well calculated to suggest the question whether phosphorus may not be as necessary as fat to the proper nutrition of a weak nervous system—as necessary as iron where there is a deficiency of red corpuscles in the blood; and this question once put, would seem to require an answer in the affirmative." Given in medicinal doses, Dr. R. has seen enough, he tells us, to know that the remedy may be given with the unmistakable promise of real and substantial good. The form in which he has prescribed the phosphorus is by dissolving grs. xij in one ounce of almond oil, by the aid of warm water, of which the dose is from five to ten minims. He has also given the phosphorated oil along with cod-liver oil, in a little orange wine, say five to ten minims of the first, to from two to four drachms of the second, twice or thrice a day.

Dr. R. believes, also, that a continuous galvanic current applied along the spinal cord, by means of a modification of Pulvermacher's electric band, may be an important help towards recovery in the case of some epileptics, though not, perhaps, in all.

From a careful study of the entire treatise we are persuaded that, even while the author's peculiar physiological views may not be received in their full extent, hints will be acquired in relation to the nature and causation of convulsive diseases generally, which cannot fail to lead to a rational therapeutics, and to a much greater success, both in their prevention and in their cure, than we can now boast of.

D. F. C.

ART. XXIV.—*Lectures on the Diseases of Women.* By CHARLES WEST, M.D., etc. etc. Second American from the Second London Edition. Philadelphia: Blanchard & Lea, 1861. 8vo. pp. 483.

THE volume before us comprises the revised edition of the portion of Dr. West's lectures first published in 1856, with those which have subsequently appeared, containing the author's account of the diseases of the uterine appendages—of the female bladder and urethra—the vagina and external sexual organs.

These lectures, thirty-three in number, present a series of instructions upon the leading sexual diseases of women, those, at least, occurring out of the periods of pregnancy, parturition and childbed; instructions which are especially valuable because of the caution and perfect candour evinced in their preparation and enunciation—the talents and experience of the lecturer, and the wide discrepancy of opinion which still exists among practitioners of eminence in regard to the true character and pathology and the proper treatment of certain of these diseases, reputed to be of great frequency.

There is a peculiar feeling of security and satisfaction experienced in the study of the writings of Dr. West, which we fear is not realized, to the same extent at least, in the perusal of the productions of very many of those whose reputation as medical teachers may even, perhaps, exceed that of our present author—a security and satisfaction arising from the conviction that his sole aim is truth—that he deals, as far as in him lies, with facts accurately stated, and in no instance intentionally perverted from their legitimate bearing to establish some favourite theory or practice.

While Dr. West makes free use of the labours of others occupied in the same field of inquiry with himself, so far as these are available for his purpose, his leading deductions are drawn, in great part, from his own personal observations. It is this, taken in connection with the ample field he has so long enjoyed for the clinical investigation of most of the diseases of which he treats, and with his habits of close investigation and careful analysis, which gives to his teachings a degree of authority scarcely to be claimed, to a similar extent, at least, by any mere compilation—by any system of pathological and practical teaching based upon facts, however unexceptionable, which the author has not gathered

from his own personal observations, but owes almost exclusively, if not entirely to the researches of others.

Every portion of the lectures before us may be consulted with profit. In addition to the first twenty lectures, a notice of which was given by us when they first appeared, some five years ago, we would direct particular attention to that portion of the twenty-third lecture which treats of a form of inter-pelvic disease to which investigation has been directed, within a few years past, chiefly by the French writers. We allude to tumours formed in the immediate vicinity of the uterus, by the effusion of blood either into the cellular tissue around the organ, or into the peritoneal cavity in the *cul-de-sac* between the uterus and rectum. The hemorrhage, in both instances, being usually associated with some previous disorder of the menstrual function—often with the temporary suspension of the catamenia; the congestion of the sexual organs relieving itself by a profuse outpouring of blood. The affection to which we refer has received the appellation of uterine, retro-uterine, or peri-uterine hæmatocele.

The history of these intra-pelvic hemorrhages, their seat, causes, symptoms, and course—their diagnosis from extra-uterine pregnancy, from retroversion of the uterus, from pelvic abscess, and from ovarian tumour, together with their prognosis and treatment, will be found laid down in the twenty-third of the lectures before us with as much clearness and definiteness as the observations in respect to them recorded by different writers up to the present time would seem to warrant.

From the few cases upon record, it is impossible to determine with any degree of accuracy, either the comparative frequency of the two varieties of uterine hæmatocele—the intra- and extra-peritoneal—or the degree of danger by which they are respectively attended. Dr. West was able to collect the histories of only thirty-seven cases, and many of these very meagre in the requisite details. These, with the addition of four other cases, which fell under his own observation, make an aggregate of *forty-one*, of which *thirty-three* terminated favourably, and *eight*, or 19.5 per cent., in death. Dr. W., however, is inclined to believe that the actual fatality of these intra-pelvic hemorrhages is much less than would be inferred from our present imperfect data. Many cases, unquestionably, have escaped recognition. The disposition to the spontaneous absorption of the effused blood, unless the quantity poured out has been enormous, seems to be very great, and menstrual disorder and abdominal pain have probably often passed away without a suspicion having arisen of their connection with hemorrhage around the uterus, or into the cavity of the peritoneum.

“Still,” remarks Dr. W., “every allowance being made for the influence of these circumstances, uterine hæmatocele must, I imagine, be always regarded as an accident of a much graver kind than mere inflammation of the cellular tissue in the neighbourhood of the uterus or of its appendages.”

In respect to treatment, two nearly opposite plans have been proposed: the one entire expectant; the other, the complete evacuation, by an early puncture, of the sac. *Fourteen* of the 41 cases, referred to by Dr. W., were treated on the expectant plan; of these, *eleven* recovered, and *three* died. The remaining *twenty-seven* cases were treated by puncture; of these, *twenty-two* recovered, and *five* died. But, as the lecturer correctly remarks, we should hesitate to draw any positive conclusions from such slender data. He considers that “neither plan can be regarded as absolutely the best,” but in the adoption of either the special circumstances of each case must guide us.

“In three of my cases, that alone excepted in which the effusion had already become a chronic evil, the puncture was followed by peritoneal inflammation, which was of great severity; and the existence of an opening in the vagina did not in that instance prevent the establishment of a communication with the bowels, and the discharge of a large quantity of blood per anum. In some instances, too, the fibrin of the blood forms, by its coagulation, a thick layer within the sac, and prevents the escape of the fluid contents after puncture with the trocar; while the enlarging the opening with a bistoury, seems to be free neither from the dangers of hemorrhage on the one side, nor from those of inflammation of the cyst on the other. The complete emptying of the cyst, its subsequent washing out with water, and the injection of a solution of iodine

into it, as practised by M. Velpeau, and advocated by M. Robert, appear to me hazardous proceedings, except when resorted to quite in the chronic state of the affection, when all disposition to hemorrhage has ceased, and the susceptibilities of the cyst wall have become blunted by the lapse of time. In the earlier stages of the affection, absolute rest, local depletion, and the ministering to each symptom as it occurs, are the indications which we should endeavour to fulfill; while the presence of a tumour even of considerable dimensions, or even its increase to some extent after its first discovery should not, I venture to think, lead us to puncture it, apart from some very serious ill, or suffering clearly attributable to it."

After puncture, the great hazard seems to Dr. W. to be that of the super-vention of inflammation, and his own experience leads him to regard this as very considerable, notwithstanding we have it in our power to control it by active treatment.

Seven lectures, from the twenty-fourth to the thirtieth, both inclusive, are occupied by a consideration of the pathology and treatment of the diseases of the ovaries. These lectures present a very full and—considering the obscure character of some of the affections—a very satisfactory account of ovarian inflammation, in its acute and chronic forms—of ovarian abscess; of cystic and colloid growths of the ovaries, and their general course and termination—of ovarian dropsy, its symptoms, diagnosis, prophylaxis, and treatment—the measures proposed for its radical cure, with a very full and candid consideration of the question as to the propriety of the practice of ovariectomy which, within a few years past, has been proposed and somewhat extensively practised, as a proper measure, in cases in which there exists a diseased condition of the ovaries.

The entire series of lectures devoted to the description, history and management of the several morbid conditions of the ovarian bodies are well deserving of an attentive study. The question of the true nature and causes of these morbid conditions is examined with great ability, while the propriety and value of the leading plans of treatment proposed for certain of the chronic affections of the ovaries are discussed with commendable caution and frankness, and an endeavour is made to arrive at a correct decision by a careful and unbiassed examination of the proper deductions that are to be drawn from the best authenticated statistics within our reach.

With respect to the much discussed question—the propriety and beneficial results of ovariectomy—it appears to Dr. W. that while some points involved in it must be still considered as unsettled, there is ground sufficient for certain conclusions which he fears must be considered as unfavourable to the performance of the operation.

"The chief grounds," he remarks, "for this unfavourable opinion may be summed up under the three following heads:—

"1st. The rate of mortality from the operation does not appear to be in course of diminution, as the result of the accumulated experience and increased dexterity gained by its frequent repetition.

"2d. Unlike most operations in which anything like the same rate of mortality occurs, it is scarcely admissible in the doubtful and desperate cases to which the Hippocratic axiom '*ad summos morbos, summe curationes*,' applies. The cases in which it may be hoped that the disease if left alone will advance tardily or become stationary, those in which something may be anticipated from other less hazardous forms of interference, are the very cases that yield the successes on which it has been sought to establish the merits of ovariectomy. It is proved to be very hazardous indeed in the young; it is believed by some very competent surgeons to be attended by so much danger in those past the middle period of life, that they have proposed to regard the operation as contra-indicated in all women who have exceeded the age of forty-five years. The compound cysts, the cysts with solid matter, the malignant, and quasi-malignant growths, those, in short, whose rate of progress is commonly most rapid, which are the most burdensome to the patient, are attended by the greatest suffering, and admit of the least palliation by other means, are precisely the cases in which the surgeon shrinks most from ovariectomy. In the table drawn up by Mr. Humphrey, who himself is an advocate of the operation, cases of this description yielded when

operated on 19 deaths to 20 recoveries; in my own table, deduced from a rather larger collection of facts, 56 deaths occurred to 62 recoveries.

"3d. Not only is the operation so hazardous in those very cases where it is really most called for, that many surgeons shrink then from its performance; but even in instances that may be selected as the most favourable, we have no sure grounds on which to rest our prognosis as to its issue. 'It is, in short, a venture at haphazard, since the medical practitioner is never able, in spite of the large experience already accumulated, to foretell the issue of the operation with the same certainty as guides him in undertaking other serious surgical proceedings. It has, indeed, been seen, in numerous instances, that extirpation of the ovary, though performed under the most favourable conditions, and by the most skillful hand, and without the occurrence of any untoward accident, has yet ended, in a few days, sometimes even in a few hours, in the patient's death.'"

These three reasons, the high mortality which experience and dexterity have failed to lessen; the special hazard attendant on those cases where yet the operation is specially indicated, and the utter uncertainty in which we find ourselves, even in the most favourable cases, as to its probable result, have been those which have chiefly influenced Dr. W. in the formation of his opinion as to the general inexpediency of performing ovariectomy.

The fallacy of the argument in favour of ovariectomy, based on the allegation that it is not attended by even as high a rate of mortality as are many other operations constantly taught and frequently practised, is clearly exposed. He does not deny that there may exist cases of ovarian disease in which, it is probable, the performance of the operation of extirpation by the knife may be justifiable. But, he remarks—

"At present, we are not in a position to lay down the indications justifying ovariectomy, or if we can succeed in sketching them in our study we cannot aver that they exist in any case which we meet with in practice; nor can we venture on any reliable grounds to express a prognosis as to the issue of our interference even when the operation has been performed with the greatest success and the fewest difficulties. Till we can do this, however, the operation seems to me to take its place by the side of those exceptional proceedings, the expediency of which must be determined by each one for himself after a careful consideration of the peculiarities of the case and the idiosyncrasies of the patient."

We have indicated, for special consideration the lectures, in the volume before us, on uterine hæmatocele and the leading ovarian diseases, not because we consider that the author has treated of the maladies in question with greater fulness and ability than he has the others which fall within his course, or that he has thrown any additional light upon their true character—more clearly determined their diagnosis, or laid down a more exact and certain plan for their treatment; but rather from the obscurity in which the majority of the diseases alluded to are involved, the very great difference of opinion existing among the leading authorities of the day on almost everything which regards their pathology and treatment, and the thorough and candid investigation which Dr. W. has made of all the facts that have a tendency to render their diagnosis and prognosis, as far as possible, clear and certain, and to throw system and efficiency into their therapeutical management.

The whole thirty-three lectures are deserving of careful study. Every disease embraced in them is ably discussed, and with evidently a conscientious desire to lead the reader to a correct understanding of its nature, and a just appreciation of the value of the methods recommended for its cure or alleviation. From the teachings of no one will more definite views in reference to the same class of maladies—their pathological character and their therapeutical management, be acquired than from those of Dr. W. as embodied in the lectures before us, and expressed in language clear, terse and unaffected.

D. F. C.

ART. XXV.—*The Diseases of the Prostate, their Pathology and Treatment.* Comprising the second edition of "The Enlarged Prostate," and a dissertation "On the Healthy and Morbid Anatomy of the Prostate Gland" to which the Jacksonian prize, for the year 1860, was awarded by the Royal College of Surgeons of England. By HENRY THOMPSON, F. R. C. S., &c. &c. London: John Churchill, 1861. 8vo. pp. 364.

IN the number of this journal for April, 1858, we gave a very full notice of the work of Mr. Thompson, entitled "The Enlarged Prostate, its Pathology and Treatment." In the spring of 1861, the Jacksonian prize, the subject of which was "The Healthy and Morbid Anatomy of the Prostate Gland," was awarded to this surgeon by the Council of the Royal College of Surgeons. In the volume before us this prize essay has been incorporated with the work first mentioned.

In this way considerable and very valuable additions have been made to the original volume to which we took great pleasure in inviting the attention of the profession. All that part which relates to the general, descriptive, and pathological anatomy of the prostate has been much augmented; those portions devoted to the subject of treatment, in its various departments, have been increased, and sometimes altered; while much of the old matter has been rearranged, and some rewritten, so as to render the work more complete and more useful. A number of new plates, which are admirably executed, have also been added, for the purpose of illustrating important points in pathology.

The views of Mr. Thompson in regard to the anatomy, the physiology, and the pathology of the diseases of the prostate, although given more *in extenso* in the present publication, are the same with those set forth in the volume already noticed in this journal, and it will be unnecessary to remark upon them again. We may limit ourselves, on the present occasion, to noticing the changes made in the chapter on the treatment of enlarged prostate.

Atony of the muscular coat of the bladder is added to the list of evils described as consequent upon enlarged prostate, from the retention of urine and habitual distension of the bladder. To resuscitate the lost function Mr. Thompson recommends cold affusion suddenly made on the abdomen twice a day, cold injections into the bladder, and these failing the passing a current of electricity by applying one pole to the lumbar region of the spinal column, and the other to the perineum and hypogastric regions alternately. A very mild current, he adds, has been passed, it is said with advantage, after the failure of a less direct route, by applying the latter pole (the one on the perineum) to the neck of the bladder, through the urethra. We have seen ourselves, in one case, recovery of the power over the bladder to follow the application of electricity, which was passed through the bas-fond of the bladder and part of the prostate by means of a sound introduced beyond the prostate into the rectum and another through the urethra into the bladder.

In *chronic cystitis*, the consequence of prostatic obstruction, croton oil is no longer recommended as a counter-irritant; and the best method of making permanent counter-irritation is described as that of rubbing a moistened stick of nitrate of silver on the skin above the pubes, first removing a portion of the hair. To the list of medicines administered internally, as possessing most value in chronic cystitis, senega and couch-grass (*Triticum repens*) are added. The decoction of senega, Mr. Thompson declares, he has found to exercise a greater influence on the mucous secretion of the bladder than any other remedy. He was led to try it from its reputation for controlling the bronchial catarrh of elderly people. An infusion of the underground stem of the couch-grass, in doses of from half a pint to a pint in the twenty-four hours, is an agent from which he has derived much advantage; he says that where the indications are to lessen the frequency and the pain of micturition, it is unquestionably useful, often affording relief when buchu, pareira, uva ursi, &c., have failed.

¹ For the method of preparing this infusion, see Quarterly Summary, p. 217.

When there is a phosphatic deposit in the urine, while this is loaded with mucus and is ammoniacal or fetid, Mr. Thompson says that he has often witnessed the good effect of injecting very dilute solutions of the acetate of lead, about one-fourth, or one-third of a grain to the ounce of water. A few ounces of plain warm water should first be injected, and after remaining about half a minute, permitted to run out. The solution of lead should only remain from thirty to fifty seconds.

The instrument of his own invention to be employed for effecting the reduction of enlarged prostate by compression, which was described in his former work, Mr. Thompson has evidently thrown aside after further experience. The risk encountered of irritating the parts by attempts of this kind, he now says, does not compensate for any little benefit attained, and which is mostly only temporary in its character. Hence, he adds, he does not advise adoption of any known method of compression, believing that in most cases the progress of the disease is more retarded by good general management of the case, and the avoidance of irritation in every form, than by any specific attempt of a mechanical nature to reduce the tumour or dilate the neck of the bladder. The other additions to this chapter, on the treatment of prostatic enlargement, are on the subject of the use of electricity for attempting the reduction of the tumour, and of this Mr. Thompson speaks unfavourably.

In its present state the work of Mr. Thompson is by far the best with which we are acquainted, in any language, on the important subjects of which it treats; and we take sincere pleasure in calling to it the attention of the profession.

W. F. A.

ART. XXVI.—*The Placenta, the Organic Nervous System, the Blood, the Oxygen, and the Animal Nervous System, Physiologically Examined.* By JOHN O'REILLY, M.D., etc. etc. 8vo. pp. 204. New York and London, 1861.

THIS is the second edition of a somewhat curious, but, at the same time, it must be confessed, an interesting treatise. Its author has made the attempt to penetrate the mystery by which, heretofore, the nature and the seat of animal life have been invested, and to trace not only its mode of action, but the very apparatus, in all its parts, through which it produces the various vital phenomena. Nerve-action and life-action are with him synonymous. In the organic nervous system he locates or centres that intangible principle by the presence of which living organized matter is distinguished from that which is dead and inorganic—which preserves the body from decomposition, and, when roused into activity through the agency of the blood and oxygen, brings into action the function of respiration, creates animal heat, effects digestion, hamatosis, and nutrition, the growth of the body, and secretion, depuration, and excretion, all, in short, of the phenomena of life, from the evolution of the ovum—the development of the fetus, the several changes which occur in after-life—the production of disease and likewise its removal, whether by the exercise of an inherent recuperative power or under the modifying influence of foreign curative agents. Nay, even the operations of the animal nervous system, and of the intellect itself, are, according to Dr. O'Reilly, dependent upon and subordinate to the action of the organic nervous system.

We are well convinced that a full recognition of a vital principle or influence, as the sole cause and sustainer of the phenomena of the living organism, and of the nervous system as its motor, regulator, and distributor, is essential to a satisfactory solution of the physiology, pathology, and therapeutics of the human system, and we look with approval upon every attempt to bring us back to the doctrines of vitality and of nerve influence; to repudiate which such strenuous efforts have, of late years, been made in certain quarters. We would, therefore, ask for the work of Dr. O'Reilly a favourable reception; not because its author can be said to have been successful in the establishment of the doctrines advanced by him in relation to life and nerve action, but because of our belief

that a study of the treatise will be calculated to open a wide field of inquiry, the proper cultivation of which is destined to yield valuable fruit.

In the volume before us will be found a fund of materials for thought, the accumulation of which has evidently cost its author no trifling amount of research; and, likewise, a series of inductions which cannot fail to arrest the attention of the reader, and incite in him a desire to investigate the premises upon which they are predicated with the view to test their validity.

It is true that there is scarcely a page of it which does not present some startling proposition; all of which may, possibly, turn out, in the end, to be truths—but at present it is very certain that they can claim but little support from known physiological and pathological facts, or from any safe course of analogical reasoning. Although it cannot be denied that the author dogmatizes far more than he reasons, still his exposition of nerve action invites to its candid perusal all who are not blind to the many very serious difficulties which beset the more popular doctrines in respect to life and its phenomena, and would desire to see pathology become the legitimate offspring of a correct physiology.

The following propositions will give to our readers an outline of the views of Dr. O'Reilly in respect to the anatomy and physiology of the placenta:—

The placenta bears a strong resemblance to the *liver* in its anatomical organization and its function. It is composed of four sets of vessels, connected together by cellular tissue. Two of these sets enter it in large trunks, namely, the maternal uterine arteries, which convey the arterial blood from the mother to the placenta; and the hypogastric arteries, which carry back the blood to the placenta after its circulation in the *fœtus*. Two sets of vessels commence in capillaries, namely, the umbilical vein, which conveys the arterial blood to the *fœtus*; and the uterine veins, which enter the decidua uteri and discharge their contents into the uterine sinuses, and through these into the venous circulation of the mother. The uterine arteries, as well as the hypogastric arteries, subdivide into innumerable branches, ultimately terminating in capillaries. Retinæ of organic nerves encompass and form plexuses round these arteries, sending twigs into their coats. The organic nerves of the maternal uterine arteries form glands at the capillary terminations of the arteries; the same is true also of the nerves of the hypogastric arteries. The glands of the two sets of vessels inosculate and freely communicate. By the combined influence of the organic nerves derived from the mother and *fœtus* in the placental lobule or gland the blood is arterialized and conveyed thence by the capillaries through the trunk of the umbilical vein to the *fœtus*, while the impure blood is carried back by the capillary maternal uterine vessels to the uterine sinuses. According to Dr. O'Reilly, there is every reason to believe that the oxygen of the maternal arterial blood is united with the venous blood of the *fœtus* by the action of electricity.

D. F. C.

ART. XXVII.—*The True Physician. An Anniversary Discourse delivered before the New York Academy of Medicine, November 7, 1860.* By JOHN WATSON, M. D., President of the Academy. New York, 1860. 8vo. pp. 44.
Address delivered at the Opening of the New Clinical Lecture-Room of the Philadelphia Hospital. By Dr. J. L. LUDLOW, One of the Medical Board and Lecturer on Clinical Medicine. Philadelphia, 1861. 8vo. pp. 26.

AMONG the numerous occasional discourses, anniversary addresses, and orations delivered every year by medical men on subjects having a direct or indirect bearing upon questions of interest to the profession there will be found some which rise far above the general standard, as well in manner as in matter, and deserve to be rescued from the common oblivion to which these productions are, for the most part, speedily consigned. Among these our readers will, we think, agree with us are to be ranked the two discourses whose titles stand at the head of the present article.

The anniversary discourse of Dr. Watson is on a subject of paramount im-

portance, and one he has treated with great judgment and truthfulness, and in a pure and polished, and vigorous style.

It may be, unfortunately, that the ideal conception of the true physician—one who shall combine in himself the qualifications of an able and successful practitioner, a classical and general scholar, an accomplished gentleman and a sincere and devout worshipper of God—is less frequently recognized amid the ranks of the profession than it should be: still, there have been, no doubt there still are many physicians who approximate more or less closely to the ideal standard. Nor are such to be found only among those whose transcendent talents, whose achievements for the augmentation and furtherance of medical knowledge and skill, or some other special cause, have enabled them to step forth from amid their fellow-practitioners, and command a celebrity to which these may not aspire. Amid the mass of the profession—amid those whose daily duties are performed solely at the bedside of the sick, will be met with many who to minds imbued with that knowledge, judgment and skill, which are the results of systematic study and well improved experience, add those moral qualities and those graces which give strength, and efficiency, and polish to their other acquirements—enabling them to win and secure confidence, and to control without offending the errors, prejudices, and follies of all with whom they come in contact—and, in this manner to obtain a fair field for the exercise of their acumen in the detection of the presence, and seat, and character of disease, and for the skilful direction of the means at their command for its removal.

To the accurate and most skilfully executed portraiture of the true physician given by Dr. Watson we call the attention of those without as of those within the pale of the profession. If we are forced to admit that, in all its traits, it is never realized in any single physician—that it is a mere ideal painting copied from no one individual, but combining single excellencies obtained from many individuals—it is no reason why it should not serve as the model, from their greater or less similitude with which the validity of the pretensions of the medical men of their day and neighbourhood to the character of true physicians are to be judged of by the public; while to those who are of the profession and aspire to be in fact true physicians it will constitute the standard after which they are to endeavour, in all things to pattern.

The address of Dr. Ludlow was pronounced before one of, perhaps, the largest classes ever assembled in this city for the clinical study of disease, and in an hospital which affords to the student gratuitously the most ample facilities and accommodations. The occasion on which the address before us was delivered was the inauguration of the new lecture-room which the managers of the Philadelphia Hospital had recently caused to be erected.

The leading theme of the address is the rise and progress of bedside medical instruction—that is to say of systematic clinical instruction in hospitals, conducted by professors appointed for the purpose. This department of medical teaching Dr. L. traces back to the latter half of the seventeenth century. It is more than probable that, from the very first establishment of institutions appropriated for the reception and treatment of the sick, it was in these the physicians in charge acquired a more exact conception of the phenomena and characteristics of disease and of their ordinary course under the plans of treatment then pursued. It was not, however, until about the year 1640 that a proper course of clinical instruction was first established, in Holland, particularly at Utrecht and Leyden. Among the most noted clinical lecturers of the latter city will be found the name of the illustrious Boerhaave; under whose instructions some of the most distinguished physicians of Europe were educated, and who, in their turn, scattered far and wide the good seed they had received from him.

Clinical teaching was first introduced into England after the middle of the eighteenth century, and soon after this was practised in different parts of the continent of Europe. In France, however, it was not until near the close of the century that clinical lectureships were formally established. But, though France had been thus tardy in providing for bedside medical instruction, she quickly made up by her efficiency in this respect what she had lost by her tardiness. The number and excellency of her clinical institutions at the present time are, perhaps, unrivalled.

It is impossible to say at what period regular clinical instruction commenced in this country, though it is probable that few attempts were made for its establishment until within the last thirty or forty years of the past century, and then, and even down to a much later period, from the few facilities furnished by our hospitals for its prosecution, the best of the clinical courses of which our country could boast, were unsystematic and superficial. A new impulse, however, has of late years been given to bedside instruction, and we can now boast of increased facilities for its pursuit on the part of those who are engaged in conducting it, and of those, also, whose desire is to profit by it, that cannot fail speedily to approximate the clinical instruction of the United States, in character, to that of France itself. Here and everywhere bedside instruction has come to be recognized, as it should always be, an essential part of medical education: no medical school can at this time be considered qualified to teach which cannot afford ample opportunities for its prosecution.

We commend the address of Dr. Ludlow to the notice of our readers. It furnishes, it is true, but a meagre outline of the history of clinical medicine—one, nevertheless, which is neither devoid of interest nor instruction. The entire address is conceived in a proper spirit and couched in correct and vigorous language. D. F. C.

ART. XXVIII.—*An Effort to shorten the Duration and diminish the Pain of the First Stage of Labour; with a Record of One Hundred and Forty-seven Cases.* By B. FORDYCE BARKER, M. D., Obstetric Physician to Bellevue Hospital. New York, 1861. 8vo. pp. 11.

On the Use of Anæsthetics in Midwifery. By B. FORDYCE BARKER, M. D., Professor of Midwifery and Diseases of Women in the Bellevue Hospital Medical College, etc. New York, 1861. 8vo. pp. 17.

THESE two essays claim especial attention from the interesting nature of the subjects discussed in them, and the character which is sustained by their author as an experienced, successful, and judicious practitioner and teacher of midwifery.

The object and scope of the first are very fully expressed in the title. The end to be attained by the effort indicated is certainly a most desirable one. The agent by which Dr. Barker proposes to attain that end is the extract of belladonna administered during the latter weeks of pregnancy. The efficacy of his proposed agent, the author informs us, he has been able to test in only a very limited number of the cases of labour which have fallen under his notice—inasmuch as in many of the cases attended by him the patient was not seen until parturition had already commenced; while in others the labour came on a very few days after the use of the belladonna had been entered upon.

His endeavour has always been to commence giving the article about two weeks, as near as may be, before the completion of gestation. As, however, the data for the formation of a correct estimate was, always, necessarily uncertain, the length of time the belladonna was taken varied considerably, in different cases, from the period indicated.

Dr. B. has found a very great difference in the susceptibility of patients to the influence of the belladonna, as well as in the strength and purity of the latter. In the use of the article he always commences with a dose of one-quarter of a grain thrice a day, and gradually increases the dose until it is doubled or tripled. In some cases much smaller doses are tolerated than in others. The test with him has been, the occurrence to a slight extent of the constitutional effects of the article—as dryness of throat, a feeling of uneasiness or giddiness of head, or dimness of vision. If any or all of these symptoms appear the belladonna was given twice instead of thrice a day. When the patient was plethoric or of a full habit, of rigid fibre and active circulation, Dr. B. has been in the habit of combining with it small doses of tartarized antimony.

The tabular record of one hundred and forty-seven cases in which a fair opportunity was afforded for testing the effects of belladonna upon the painfulness

and duration of labour, exhibits the number of the pregnancy, the duration respectively of the three stages in each case, the presentation and position of the child, with its size and weight.

So far as this table goes its results would seem, in some degree, to speak favourably of the influence of the belladonna on the duration of the first stage of labour, if it be silent in respect to any power it exercises in diminishing the attendant pain. But, as Dr. B. very correctly remarks, the test of a larger experience and of other careful observers is necessary, in order to determine satisfactorily the prophylactic value of the article.

The second essay—on the use of anæsthetics in midwifery—which was delivered originally before the New York Academy of Medicine, discusses a question to the settlement of which no amount of *a priori* reasoning is adequate. The question is simply one of empiricism. If, by experience, it shall be shown that the induction of anæsthesia by any of the agents in use in no degree increases the danger of labour, as respects either mother or child, nor renders either the one or the other liable to any injurious consequences afterwards, we are perfectly warranted in resorting to it—nay, are perhaps required, by the duties we owe to our patients, to resort to it, in order to diminish the sufferings of parturition. The safety of anæsthesia in midwifery being established, we want nothing further save an acquaintance with the rules for its employment, and with the circumstances, if there be any, which should prohibit a resort to it. These are to be acquired, also, from results alone of experience.

The conclusions arrived at by Dr. Barker in respect to the use of anæsthetics in midwifery are given in six general propositions, as follows:—

"1st. Anæsthetic aid is of the greatest value in the obstetric art, and chloroform is generally the preferable agent for this purpose.

"2d. It exerts no injurious effect, when properly administered, upon the health of either mother or child.

"3d. It is perfectly justifiable to use chloroform in natural labour, solely for the purpose of relieving pain.

"4th. It is especially useful in calming the extreme agitation and mental excitement which labour often produces in very nervous women.

"5th. It should be administered in those cases of natural labour, where the progress is suspended or much retarded by the pain occasioned by previous diseases, or such as may supervene during labour, and in those cases where the irregular and partial contractions occasion intense and almost constant pain, but have no effect to advance the labour.

"6th. It is of great service in spasmodic contraction and rigidity of the cervix uteri, in tetanic rigidity of the perineum, in certain forms of puerperal convulsions, and in the various obstetrical operations."

Dr. Barker prefers, in midwifery practice, chloroform to ether. While he considers the former equally safe, its odour to most persons is much more agreeable, whilst it is less persistent; it is less liable to produce the irritation of the bronchi with an annoying cough or choking so often consequent on the first administration of ether. Chloroform, when used for any length of time, does not fill the chamber with a disagreeable and, let it also be remembered, inflammable vapour. The effects of the chloroform are more prompt than those of ether; free, generally, from the preliminary stage of excitement, and allowing the use of the agent for each recurring pain, the patient in the interval being comparatively free from its influence. We can, also, regulate with more certainty the degree of anæsthesia with chloroform than with ether.

It is the duty of each obstetrician carefully to examine the evidence offered to prove the entire safety of anæsthetics during labour, and upon his own convictions and the validity and satisfactory character of that evidence must his conduct in respect to their use or disuse be directed. If he believes in the entire safety of their use both for mother and child, his duty will be, then, to resort to them in cases to which experience has taught us they are adapted. Relief from pain is an important desideratum to the parturient female, and it should be secured to them when it can with propriety be done; and by such agent as has been shown to be the safest, most agreeable, and most easily managed.

D. F. C.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Relation of Respiration to Muscular Action, and on the General Significance of Respiration.*—By Dr. MORITZ TRAUBE. The author first shows that the division of food into tissue-forming and respiratory (according to Liebig's hypothesis) is negated by the fundamental conditions of animal life. It is wrong to suppose that the consumption of material in animals, as expressed in the respiration, suffices merely for heat production. In respect to the whole range of the animal kingdom, including cold-blooded creatures, one may rightly conclude that the most important function of respiration is the maintenance of muscular activity. The experiments of Lavoisier, and of Regnault and Reisel, prove that, with increase of exercise (muscular movement), an increased amount of oxygen is consumed. By a comparison of torpid, half-torpid, and active lizards, this law was strikingly demonstrated. Pathology shows that any deficiency of respiration (*e. g.*, in certain heart diseases) brings with it the incapacity for muscular activity. The question arises: Into what element of the muscle does the oxygen of the blood fix itself? is it diffused in the fluid of muscle? or is it associated with the muscular fibre itself?

As the blood passes through the capillaries, a portion of the oxygen is set free; this passes through the walls of the vessels, and joins the muscular fibre in the form of an unstable chemical combination, which is capable again of giving up its oxygen to another matter, which is present in the fluid of muscles, and which has a stronger affinity for oxygen than the muscular fibre. The latter is again in a condition to take up a fresh portion of oxygen. This theory the author has developed in a previous work.¹ The combinations formed in the fluid of muscles the author seems to regard as a transition product (*Zwischenprodukt*) towards water and carbonic acid. This transference of oxygen is effected more rapidly at high than at low temperatures, in warm-blooded than in cold-blooded animals. The deoxidation of the muscular fibre goes on most rapidly under the action of the nerves, but in a manner not yet explained. Since an active muscle by its oxygen oxidizes, in a given time, more combustible material, and consequently produces more carbonic acid, than during the conditions of rest, so must the increased amount of carbonic acid derive more oxygen from the arterial blood. In long-continued hard labour so much oxygen may be used that the respiratory apparatus is put into most active exercise. Perfect deoxidation of the muscular fibre corresponds with *post-mortem* rigidity; consequently, we find that heat hastens and cold retards rigidity. Muscular action has the effect of hastening rigidity, whilst the contact of oxygen again dispels

¹ *Theorie der Fermentwickungen.* Berlin, 1858.

it (Brown-Sequard and Stannius). The experiments of Humboldt, Liebig, and Brown-Sequard, taken collectively, prove that the *post-mortem* rigidity of muscles is produced by the want of free oxygen. According to Traube, the muscular fibre, or rather the fibrinous matter contained in it, is a vital ferment, which transports oxygen from the blood-substances dissolved in the fluid of muscle. From the above theory, the following consequences may be deduced: The muscles in their quiescent state minister to the process of respiration, since they hand over the oxygen of the blood to combustible materials, and reduce the latter—with the formations of heat—to carbonic acid and water. The transitional combustible matters consist, according to Helmholtz, of substances soluble in alcohol; but, according to Du Bois Reymond, of acids. The muscles, then, may be considered as the principal seats of combination and heat-production. The organized part of the muscle is not disturbed in its function. The theory of Liebig, that the albuminous substances, by their chemical changes, are chiefly concerned in supporting muscular activity, is not borne out by the above conclusions, for non-nitrogenous substances may be equally serviceable, and the urea thus furnishes no estimate for the developed muscular force. From experiments of Bischoff and Voit, it results that the destruction of albuminous substances has nothing to do with the muscular action of the animal organism, but it is highly probable that the decomposition of albumen is effected by a ferment in the liver. The bile, from its contained nitrogen and sulphur, unmistakably indicates its origin. Kühne and Hallwachs have proved¹ that the seat for the conversion of non-nitrogenous benzoic acid into nitrogenous hippuric acid is the liver. The experimentum crucis which proves that the albumens do not participate in muscular action is that of Voit, in which, after extreme muscular action, the excretion of urea was shown not to be increased. It has been shown that increased muscular action requires consumption of oxygen, and that a quantity of matter in muscles is consumed. Did this matter consist of the muscular fibre itself, or of the albumen in the fluid of muscle, then, after increased muscular action, we ought to find much urea in the urine, which is not the case. Although the albumens take no part in muscular action, their presence is very important. They alone are capable of forming the various ferments, of sustaining the growth of organs, and of repairing the loss of substance. They are necessary for the maintenance of mucous membranes, bones, epidermis, nails, hair, etc. They are also required for the *organized* parts of muscle. The decomposition of albumen is essential to the formation of bile. In the carnivorous animals it must also serve for heat formation and for muscular activity. But Liebig has introduced an error in dietetics, in estimating the worth of nutriment by the proportion of nitrogen contained in it. The most striking contradiction to this supposition is furnished by the herbivorous animals, many of which are remarkable for their capabilities for prolonged labour.

After some remarks on respiration, Traube sums up the functions of that act under the three following heads: 1. The respiratory process is necessary for cell formation: This is its most general function, because all organized beings, plants as well as animals, require oxygen for the construction of cells; in plants, this is the only use of respiration. 2. Muscular activity: This function is common to warm-blooded as well as to cold-blooded animals; in the latter, muscular activity is the most important object of respiration. 3. Heat production: Although this function requires the greatest consumption of oxygen, yet it is only in warm-blooded animals that it has the signification of a truly vital process.—*Edinburgh Medical Journal*, Nov., 1861, from *Archiv. für Pathologie. Anat. und Physiologie*.

2. *Influence of Water on the Metamorphosis of Matter*.—Dr. FREDERICK MOSLER, of the University of Giessen, has recently instituted a series of experiments on the influence of common drinking-water, taken in various quantities, upon the general metamorphosis of matter in the human body, which have led to important results. The experiments were made on a number of men, women, and children; in one series the food and the general mode of living remained un-

¹ *Pharmac Centralbl.*, 1857, s. 359.

changed; in another, the liquids which had been usually taken, were withdrawn; and in a third, various quantities of common drinking-water were added to the usual consumption of liquids. The water used in these experiments had been carefully analyzed, and was found to contain 2.7 grains of solid constituents, amongst which the carbonate of lime, iron, and magnesia, and chloride of sodium predominated. One grain of carbonic acid was contained in sixteen ounces of water.

The disturbances observed after withdrawing liquid food were very striking, and ensued more rapidly, if the solid food which was taken contained only a trifling quantity of water; in persons in whom the metamorphosis was comparatively more energetical than in others; if exercise was taken, and if in consequence of previous indisposition, there was no great power of resistance to morbid influences. In every case the secretions and excretions were diminished, especially so, the excretion of urine, which, although its specific gravity was considerably increased, nevertheless was found to contain a much smaller amount of solid constituents than the quantity of urine which had been previously discharged. The urea was very much diminished; after that came the chloride of sodium, phosphoric and sulphuric acid. Effete matter was therefore retained in the blood, in consequence of a diminished action of the kidneys; and to this the morbid symptoms, and especially the fever which was observed, were no doubt to be ascribed. The excretion by the skin and the lungs was also much diminished; costiveness, loss of appetite, and a dry tongue were complained of—that is, evidently symptoms owing to a deficiency in the secretion of the mucous membrane of the mouth, the stomach, and the intestines.

If, on the other hand, a larger quantity than usual of water was administered, the metamorphosis was greatly accelerated. The quantity of the urine, of urea, the sulphates, the phosphates and chlorides, and of the feces, was much augmented, while uric acid appeared diminished. As regards age, sex, and constitution, the same quantity of water had a much more considerable and lasting effect in boys and girls than in adult males; if water was administered for a somewhat lengthened period to males of a feeble constitution, the metamorphosis was in them more increased than in very vigorous persons; and febrile symptoms set in which were, in a few instances, of a threatening character. The temperature of the atmosphere and of the water which was taken, had also a certain influence. If the air was warm, and at the same time exercise was taken, the metamorphosis increased more considerably; warm water appeared more effective than cold, and there were also differences according to whether the several quantities of water were drunk at long intervals or in rapid succession.

In cases where the increased appetite was indulged by a more abundant administration of food, the expense of the system was thereby compensated, and the long-continued use of water did not thus make such inroads upon the constitution as was the case if the food was not increased; the weight of the body was also not so much diminished under such circumstances. In some cases the action of the water was chiefly diuretic, in others it was more diaphoretic. As regards the intestines, generally, only a very trifling quantity of water was eliminated by them; but in one boy and two girls a large amount of water taken caused profuse diarrhœa, which was also observed in a few adult males, after the use of the water had been long continued.—*Med. Times and Gaz.*, Nov. 30, 1861.

3. *Influence of Salts of Lime on Nutrition of Bone.*—M. ALPHONSE MILNE-EDWARDS has made some experiments on the part taken by the salts of lime in the nutrition of bone. He fed three pigeons with wheat, rice, maize, and decocted millet; so that the amount of lime supplied was much less than that contained in their common food. Another pigeon was fed in the ordinary way. In three months, the three pigeons had diarrhœa and began to waste; they were killed, as was also the other, which had remained healthy. The bones of the three pigeons artificially fed were much smaller, and weighed one-third less than those of the bird which had had its ordinary food; but the relative proportions of inorganic and of organic matter in them were not changed. The change in diet, then, M. Milne-Edwards observes, did not change the composition but the size of the bones—the removal taking place in all the constituents and not in

the earthy matter alone. This gives support to the idea that the formation of osseous tissue is the result of a chemical combination between the organic matter and the phosphate of lime. M. A. Milne-Edwards has also endeavoured to determine whether other inorganic matter, as iron, manganese, and magnesia, can be substituted for lime in bone. It is well known that various mineral substances can be made to enter into the composition of the shell of the egg; but in bone this substitution, M. Milne-Edwards finds, cannot be effected. He explains this difference on the grounds that the phosphates of iron, manganese, and magnesia are not isomorphous with the phosphate of lime, and therefore cannot be substituted for it; while in the egg-shell, various isomorphous carbonates may be substituted for that of lime. Moreover, he regards the shell of the egg as in fact an excrementitious substance, and hence as capable of taking up foreign and even injurious matters for the purpose of expulsion.—*Moniteur des Sciences Méd. et Pharm.*, July 2, 1861.

4. *Researches on the Changes undergone by Cane Sugar in the Intestinal Canal.*—Dr. KÖBNER has investigated this subject, and the following are his conclusions: 1. Cane sugar undergoes no change when left from two to four days, at 104° Fah., in natural gastric juice obtained from a dog. 2. Neither is cane transformed into grape sugar in the living stomach. 3. Lactic acid may, after a time, be detected in a mixture of cane sugar, by means of bile which has been freed from mucus. 4. In the ileum cane is transformed into fruit sugar, at least the presence of the latter can be detected in the ileum by means of the polarizing apparatus. 5. Sugar is largely absorbed by the stomach, duodenum, and small intestines. 6. Cane sugar is partly transformed in the latter into lactic acid and fruit sugar. 7. In dogs and rabbits cane sugar occasionally passes unchanged from the intestines into the portal blood, and this is probably the reason why dogs fed on sugar excrete a smaller quantity of urea. 8. Cane sugar, even when eaten in quantity (by dogs), does not reappear in the urine; but, after a saccharine diet, the amount of uric acid appears to be increased.—*N. Syd. Soc. Year Book*, 1860.

5. *On the Formation of Sugar and Amyloid Substance in the Animal Economy.*—Dr. R. McDONNELL puts the question—Is the liver endowed with the power of converting amyloid substance into sugar during life, and health? In order to elucidate this question, he withdrew, by means of a catheter, blood from the right side of the heart in the living animal, and the results were—

1st. In twelve experiments made on dogs, for some weeks before fed exclusively on meat, traces of sugar were found in the blood in five; there was no sugar found in the blood of the remaining seven.

2d. In four rabbits, fed on boiled eggs, meat, and butter, for some days, no sugar was detected in the blood drawn from the right side of the heart.

3d. In three dogs, fed on mixed diet, and three rabbits, fed on carrots, potatoes, &c., sugar was found in the blood of the right side of the heart, and in equal quantity in blood from the carotid.

4th. In three rabbits, fed on vegetables, sugar was found in the blood withdrawn during life from the right side of the heart; but double, and in one instance more than treble, the amount was found in the blood removed from the same locality after the animals were killed.

Hence, says McDonnell, one seems in some degree justified in concluding that in vegetable-eating animals the blood is normally saccharine; but that the liver does not form and pour out into the blood of the hepatic vessels sugar specially derived from the transformation of the amyloid substance.—*Ibid.*, from *Dublin Hosp. Gaz.*, May 15.

6. *Sucking Apparatus of Infants.*—Some time ago, Messrs. CHARLES ROBIN and MAGITOT brought the results of their researches on the mucous membrane of the gums in the foetus and newly-born infants, before the Société de Biologie; and the following are a few of the most important particulars regarding the sucking apparatus of infants: On the dental cartilage of both jaws there exists, in the region of the canine teeth, a membranous protuberance, which is most

conspicuous in the lower jaw, and sometimes entirely wanting in the upper. This prominence, which disappears three or four months after birth, shows the following peculiarities: It has a slight impression in the centre, and on microscopic examination, two or three papillar prominences may be distinguished, which are very vascular, and thereby capable of erection. The protuberance on the right side of the lower jaw is generally connected with that on the left, by a membranous seam, which is also furnished with papillæ, and very vascular. The edge of the lower jaw, therefore, possesses, as it were, a thin and small lip, extending from one canine tooth to the other, and evidently serving the purpose of sucking.

In some individuals this membranous fold is very thick, but it is always movable forwards as well as backwards. In such instances the prominences are replaced by the ends of the fold itself being larger; so that it resembles a soft and almost oedematous tubercle of oval form. Similar tubercles, only less broad and prominent, exist on the upper jaw. If the surface of the membranous fold is closely examined, it appears to be slightly wrinkled: which is due to the rather voluminous papillæ with which it is furnished; these are rounded above, and covered by a delicate layer of epithelium cells, like the rest of the gums; through which the top of the papillæ are distinctly visible. The reddish colour of this membrane may be easily distinguished from the whitish appearance of the fibrous tissue in the mucous membrane of the gums, which is covered by it; and where it passed into the gums, wrinkles are no longer visible. The prominences described above are sometimes wanting, but the membrane itself is always present; and ends either at the canine teeth, or a little beyond them.—*Med. Times and Gazette*, Nov. 30, 1861.

MATERIA MEDICA AND PHARMACY.

7. *Physiological Action of Aniline.* By Dr. JAS. TURNBULL, of Liverpool. —As we know that the alkaloids and their salts are almost identical in their effects, we can scarcely doubt that the physiological action of aniline and that of the sulphate are the same, or very nearly so. Gmelin states that half a gramme of aniline introduced, together with a gramme and a half of water, into the stomach of a rabbit, caused strong clonic cramps, then laborious breathing, loss of strength, dilated pupils, and inflammation of the mucous membrane of the mouth.

Dr. Schuchardt¹ arrived at the following results from a series of experiments: Aniline may act injuriously on the animal organism, and in large doses may even cause death. Frogs introduced into a weak solution containing aniline died in periods varying from a quarter of an hour to two hours and a half, and death was also caused by the introduction of aniline into the mouth or into a wound in the back. Rabbits were also poisoned by this substance, a small animal being killed by fifty drops in six hours and a quarter, and a larger one by a hundred drops in four hours. In all the animals experimented upon, violent clonic and tonic spasms ensued after the application of the aniline, and continued almost uninterruptedly till death. There was also loss of sensibility, commencing at the lower extremities and extending to the upper; the temperature of the body was also reduced. Wherever the aniline was applied locally, as in a wound of the back, on the stomach, on the posterior part of the tongue, or on the conjunctiva, appearances of irritation were observed, which are probably connected with the power possessed by aniline of coagulating albumen. The aniline was never detected in the urine, and it is probable that this substance is eliminated from the body rather by the organs of respiration than by the kidneys.

I gave to a dog about three months old half a drachm of the sulphate of aniline, and the effects produced corresponded in many respects with those observed

¹ British and Foreign Medico-Chirurgical Review, July, 1861, p. 247.

by Dr. Schuchardt. About two hours and a half after it was given, the animal vomited, and an hour later it was purged. It became dull, weak, and tremulous; the pulse became very rapid; the pulsations of the heart were counted 148 in a minute, and the breathing was somewhat laboured. The feet were cold, the tongue of a blue colour, and the hind legs almost paralyzed. Five hours after, it was very weak, but recovering, and the next day it had recovered appetite and liveliness.

The sulphate of aniline does not seem to have the same local irritating effect that the aniline itself produces. My own observation would lead me to believe that it has a direct action on the nervous system. The most striking effect, however, which it produces is the visible alteration in the colour of the lips and complexion. A peculiar blueness of the lips, the tongue, and the nails, and a dusky appearance of the complexion, have been observed in a greater or less degree in most of the cases where a sufficient dose has been taken continuously for any considerable time. It is a temporary effect which has always gone off within twenty-four hours when the remedy has been omitted. In one case, where an overdose of not more than three or four grains was taken, the blueness in the hands extended above the wrists. There has been some depression and headache in some of these cases, which symptoms have, however, gone off when the medicine has been discontinued. The blue appearance, though like that which occurs in chronic bronchitis, does not seem to arise from any interference with the respiratory function. This change of colour is more interesting from the fact, that we have few examples of parallel effects resulting from the exhibition of medicinal agents. The permanent discoloration of the skin which sometimes arises from the long-continued exhibition of nitrate of silver is scarcely a parallel case, for here the oxide of silver is deposited in the skin from the remedy being decomposed by the action of the light; whereas the blueness from the sulphate of aniline appears to arise from a colouring matter being formed in the blood, which is most visible in parts like the lips, where there is a thin mucous covering. The effect of madder-root (which is used as a dye) in colouring the bones of animals fed upon it of a red colour is more nearly a parallel case; but the effect of the carbazotic acid and its salts—which are of a deep yellow colour, and produce a similar colour of the skin, as if the individual were artificially jaundiced—is the example which most nearly resembles that of the colouring influence of sulphate of aniline. This power which carbazotic acid has of colouring yellow, not only the tissues but also the fluids of the body, was discovered by my friend, Dr. Moffat; and it is worthy of observation that both aniline and carbazotic acid are derivatives from the radicle phenyle.

If the blue colour produced by sulphate of aniline does not arise from any interference with respiration, we have to inquire from what other cause it may arise. I believe it is from the sulphate of aniline being oxidized in the blood, and producing in it a blue dye. Gmelin states a fact which seems to prove this—namely, that when aqueous sulphate of aniline is boiled with peroxide of lead, an oxidizing agent, carbolic acid, is evolved, and a blue liquid produced which smells of formic acid and afterwards becomes colourless, and gives off ammonia when heated with potass. Aniline, it has also been stated, is a derivative from indigo; and it has relations to many other dyes, the mauve-dye being made from the sulphate of aniline by oxidizing it with bichromate of potass. It is, therefore, probable that the temporary blueness arises from a colouring matter, or dye, being formed from oxidation of the aniline in the blood.—*Lancet*, Nov. 16, 1861.

8. *Physiological Effects of Opium.*—Dr. G. BODINGTON believes that the possibility of giving large doses of opium in cases of delirium tremens, not only with impunity, but even with advantage, arises from the circumstance that alcohol has to a certain extent the power of controlling the physiological effects of opium. Hence it is that, when the system is, so to speak, saturated with alcohol, opium becomes comparatively innocuous. The author further states that the use of opium should be specially guided by the previous habits of the patient, and that the modern salts of the drug seem to be the most dangerous form in which it can be given. "The native opium contains constituent ingredients of a contrary character, which are counteractive of each other. Laudanum, hold-

ing all these in solution, is the safest form, inasmuch as the alcohol, the solvent, in some measure acts as an antidote.”—*British Med. Journ.*, June 9.

9. *Triticum Repens in Irritable Conditions of the Bladder*.—HENRY THOMPSON, Esq., highly extols an infusion of *Triticum repens* in irritable conditions of the bladder. The form he has adopted for administering the remedy is as follows:—

“One ounce of the dried and cut stem is infused in a pint of boiling water for an hour. The liquor removed by straining has been given, unmixed with any other remedy, in quantities varying from twelve ounces to a pint during the twenty-four hours, in several doses. The taste of the infusion is rather agreeable than otherwise; it produces no nausea or derangement of the stomach.

“From notes of the numerous cases in which I have employed it, making at the same time due allowance for the effect of other sources of benefit to the patient, I have arrived at the following conclusions respecting the indications for its use:—

“In vesical irritability produced by inflammation of the prostate and neck of the bladder; in severe gonorrhœa, and especially when the inflammation extends backwards; in the pain and spasm caused by calculus, and by aggravated stricture of the urethra, as well as in some cases of obscure disease of the bladder, the good effects of the infusion have been very marked, and it has proved far more efficacious than the buchu, which may fairly be esteemed the most widely applicable and generally useful of our officinal remedies of this class in such circumstances. In cases of prostatic enlargement in elderly patients it has been of service, but less frequently than in the conditions above named. It has also afforded great relief in renal calculus. A medical man practising in London, who has thus suffered, and very severely, during many years, tells me that ‘after trying every approved remedy, it is the only thing that has rendered life endurable.’ This is one of four similar cases in which it has been more or less useful.

“In short, wherever micturition is very frequent or painful, depending on hyper-sensibility of any part of the urinary passages from acute or subacute inflammation, with signs of its presence in the urine itself, the symptoms are mostly materially relieved, and the urine becomes clearer. If improvement is produced at all, it is generally very soon after commencing the medicine, and if none can be observed in four or five days, it is not worth continuing to employ it.

“I believe it is important that the plant should be gathered in the spring shortly before the leaves appear; the stem is then to be slowly dried without artificial heat, and cut into short lengths for use. The infusion obtained from material so treated is superior to that made from plants gathered indiscriminately at any time, and, also, to the infusion made from the *Triticum repens* which is imported by the herbalists for the purposes of French pharmacy in this country.”

10. *The Uses of Phenic Acid*.—A paper was read at the meeting of the Academy of Sciences, on March 4th, by M. LEMAIRE, who ascribed extraordinary properties to this acid, which is one of the results of the volatile distillation of coal-tar. He stated that anatomical specimens and entire animals might be preserved, in a fresh condition, in vessels smeared over on the inner surface with phenic acid, provided that the vessels are hermetically sealed so as to prevent the removal of the air contained in them. The bodies of animals injected with phenic acid, dissolved in water, may be kept without any alteration by the contact of atmospheric air. In this manner, the body of a man might be preserved at a very trifling expense. An aqueous solution, containing one part of phenic acid and forty parts of acetic acid in a hundred, will, according to M. Lemaire, cure tinea in thirty or forty days, and scabies almost immediately. In the treatment of tinea, a compress soaked in this preparation should be applied once daily. In scabies, a single application will suffice for the destruction of the parasites which keep up the affection. The acetic acid is added to the solution for the purpose of enabling it to penetrate beneath the epidermis down to the roots of the hair.—*British Medical Journal*, August 10, 1861.

11. *Administration of Cod-Liver Oil and Iron*.—M. JANOTA describes a method of administering iron in combination with cod-liver oil. The iron is combined with the oleic acid of the oil. Seven drachms of carbonate of soda are dissolved in eight ounces of distilled water; the solution is filtered, and to it is added a solution of seven drachms and a half of sulphate of iron in eight ounces of distilled water. The precipitated carbonate of iron is washed, and to it is added four times its weight of oleic acid; and the mixture is heated to gentle boiling. When a large portion of the water is evaporated, and the mass has acquired a black colour, with evolution of carbonic acid, the oleate of iron thus formed is shaken in a bottle with sixteen ounces of cod-liver oil, set aside for a short time in order that all the water may be separated, and filtered through white paper. The preparation has a beautiful red colour, and in smell and taste differs little from ordinary cod-liver oil. It must be kept in well-stoppered bottles.—*Brit. Med. Journ.*, Oct. 12, 1861, from *Oesterr. Zeitschr. für Pharm.*, 1861.

12. *Medicinal Extracts*.—At a meeting of the Pharmaceutical Society held on the 6th Nov., the President, Mr. Squire, read a Paper on "Medicinal Extracts, taking extract of belladonna as an example."

The object of the paper was to point out that the process for the preparation of the so-called "green extracts," given in the London Pharmacopœias from 1809 to 1851, was never followed by the manufacturers of those extracts on a large scale; and, further, that the plan which is adopted by the manufacturers is decidedly the better. Mr. Squire tested the different processes with some belladonna. The plant arrived at maturity in September this year, and was then cut, and immediately used. From this plant three extracts were made, one from the leaves only, as directed in the Pharmacopœia, another from all the soft parts (the plan adopted by the manufacturers), and a third from all the soft parts, except the leaves. The first became mouldy in ten days. Both the others were good extracts, which kept well. To test the effects of the extracts, Mr. Squire placed specimens in the hands of some eminent ophthalmic surgeons—Mr. Wordsworth, Mr. White Cooper, Mr. Dixon, and others—for trial, and they all reported that the extract made from the soft parts without the leaves acted most powerfully and rapidly in dilating the pupil of the eye. Mr. Squire concludes, therefore, that the most active and best keeping extract is made from the whole of the soft parts of the plant—a fact which applies to extract of henbane and other green extracts as well as belladonna. Another reason for adopting the manufacturers' plan was, that when the pharmacopœia process was followed, there was a loss of one-third of the useful constituents of a plant.—*Med. Times and Gaz.*, Nov. 30, 1861.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Treatment of Delirium Tremens by Large Doses of Tincture of Digitalis*.—Dr. F. E. CAREY relates (*Med. Times and Gazette*, August 24, 1861) four cases of delirium tremens successfully treated by large doses of tincture of digitalis.

Case 1. P. B., aged 42, carpenter, was admitted into the Hospital February 26, 1861, with well-defined indications of delirium tremens. I was requested to visit him the previous day at his own house, and found him labouring under all the hallucinations of the disease consequent on a protracted debauch of some weeks, which had depressed and enervated a naturally feeble system. For nearly three weeks he had been unable to procure any refreshing sleep. During this day, I prescribed four grains of solid opium and ʒj of tinct. opii, which produced the inverse effect of aggravating the cerebral excitement. The evening of the day of his admission, I administered a half-ounce dose of tinct. digitalis, with an equal quantity of gin, which, after the lapse of half an hour, caused him to

fall into a deep sleep, which continued with one brief intermission for twelve hours. He awoke quite rational, and two days subsequently was presented cured. The digitalis did not produce its alleged results, diarrhœa and vomiting, nor were the kidneys stimulated to increased action.

Case 2. R. C., aged 30, after a prolonged course of dissipation, was seized with unmistakable symptoms of delirium tremens. On his removal to the hospital, which was necessitated by his extreme violence, eighty drops of laudanum were given. At eight o'clock, P. M., as there was no mitigation of the delirium, an additional dose of forty drops was ordered. The night was spent in wandering and in attempts to escape from restraint. The following morning, after a copious evacuation, he was ordered a combination of laudanum (forty drops), and antimony, which was repeated after four hours. He had then taken the equivalent of at least ten grains of opium in twenty-four hours. In the evening, as no amelioration had taken place, the half-ounce dose of digitalis was administered, with an equal quantity of gin. His condition throughout the night was calmer, and for four hours he enjoyed undisturbed sleep. No further treatment was deemed necessary, notwithstanding that he continued somewhat disposed to be boisterous during the next twenty-four hours. A subsidence of this soon took place, and he was dismissed cured at the end of the fifth day from his admission.

Case 3. A third case occurred in a gentleman, aged 28, whose nervous system had also been subjected to the effects of prolonged alcoholic drinking. Opium was equally generously administered, but, as in the preceding cases, its inefficiency was most manifest. Recourse was had to the digitalis with such good results, as to tranquillize our patient, who had been afflicted with the most soul-torturing delusions it has yet been my lot to witness.

Case 4. The fourth case has occurred within the last few days in a man, aged 25. He is the subject of epilepsy, induced by his habits. His appearance betokened serious disease of the heart, confirmed by auscultation, which detected an aortic systolic murmur, with extensive hypertrophy. This patient's daily consumption of raw spirit was not much below two to three pints. Aberration of mind quite characteristic. Opium was again resorted to, but its shortcomings were as evident as in the other cases. Half an ounce of digitalis was given in the morning. Notwithstanding my remonstrances, the patient left his room and wandered about the house, much quieted, however, till he retired to bed at his usual hour. Next morning, I found him calm and composed, having had a few hours' sleep. The immediate effect of the digitalis here, was to equalize the circulation, and to restore warmth to the extremities, chilled by his morning's walk.

This latter case is interesting, as indicative of the non-injurious effects of wholesale doses of digitalis in cases where morbus cordis exists. This condition of the heart, though not to the same extent, was detected in the preceding case. In any of these cases, should the first dose of the digitalis not have sufficed, I would not have scrupled administering a second, as the influence on the pulse was not such as to offer any barrier to its repetition.

In the same Journal for September 14th, Dr. D. M. WILLIAMS reports the following case:—

"At noon of Wednesday, August 28, I was requested to see a private patient, whom I have cured of delirium tremens on two previous occasions by a single subcutaneous injection of two-thirds of a grain of sulphate of morphia, dissolved in ℥xx of water. Since the last attack he had been perfectly sober, until August 13, when he began to drink, but continued to eat as usual until the 20th, from which time he drank brandy, and continued doing so up to the day I saw him. He became delirious on the 26th, and slept none during that or the following night, nor had he eaten food since the 20th.

"When I saw him he was perfectly furious, almost naked, and struggling to get out of the house; with difficulty I ascertained that the pulse was 108. 2 P. M. Administered tinct. digitalis ʒss, and persuaded him into bed. In twenty minutes the pulse had fallen to 96, full and soft; tongue loaded. He was still very much excited, and I thought the lowering of the pulse was due to position and soothing conversation. To have another ʒss tinct. digit. at 4 o'clock. 5 P. M. An hour has elapsed since he took the second dose of the tincture; he has been ex-

tremely wild and restless, excepting once, when he seemed to fall into a quiet doze for a few minutes, but awoke as mad as ever. Pulse 96, full, soft, and regular; skin cool, but as he is almost naked, and cannot be induced to lie in bed covered, that is easily accounted for. To have another $\mathfrak{z}$ ss tinct. digit. at 7 o'clock. At 10.30 P.M. had become more manageable, and has been quieter since 6 o'clock; pulse 96, but wiry, with an uncertainty about an occasional beat; has slight nausea, will take no food, but wants beer continually; to have a little brandy and lemonade during the night, and as much beef-tea as he can be induced to take.

"August 29. 10.30 A.M. Has had a bad night, has not slept more than an hour and a-half since he took the first dose, but has been vomiting and purging very much all night, with violent palpitation of the heart between 6 and 10 o'clock this morning. He attempted to take beef-tea, also brandy and lemonade, but vomited everything; he is, however, quite quiet, talks rationally, and complains much of the palpitation. Pulse 86, full, soft, and steady; skin comfortably warm and moist, tongue cleaner; to take $\mathfrak{z}$ ss every three hours of the following mixture, and as much food as possible: R. Bismuth subcarb. $\mathfrak{z}$ ij; sol. morph. $\mathfrak{z}$ j; ether chlor. $\mathfrak{z}$ iss; mucilage Arab. $\mathfrak{z}$ ss; aqua ad $\mathfrak{z}$ vij. M. 10 P.M. Has spent the day at Eastham, where he took six and a-half glasses of brandy, but no food or medicine. Has had no vomiting or purging since morning; kidneys have acted throughout as usual. He is now quite quiet, but provokingly obstinate, and craving more brandy; pulse 96. All stimulants forbidden; to take his mixture and as much milk, beef-tea, etc., as possible during the night.

"30th. He is so much better of his delirium that his friends allowed him to go to Seaforth alone, as he complained of being ill, and thought a little change would enable him to return to business quicker. His wife says he has had a good night, and she thinks he slept a good deal; has had no stimulants, but drank a large quantity of milk, and from this time steadily recovered."

14. *Treatment of Intermittent Fevers by Disulphate of Cinchonia.*—Dr. JAMES KIRKPATRICK relates (*Madras Quarterly Journal of Medical Science*, July, 1861) twelve cases of intermittent fever, with a view of corroborating the growing opinion that in the disulphate of cinchonia we have a remedy second only, if not nearly equal in efficacy, to the disulphate of quinia, in periodic fevers. "Some of the earlier experiments," he observes, "in the use of the disulphate of cinchonia threw discredit on its value, and, consequently, in comparison with the similar salt of quinine, it has scarcely been used. Of late years, however, many practitioners in several parts of the world have borne testimony to its good effects in the treatment of intermittents, and the object of this paper is to add thereto. Besides the twelve cases now given, which are not specially selected on account of success, but merely a few of the ordinary cases of intermittent fever treated in the Pittah Civil Hospital at Bangalore, I have used the cinchonia in a considerable number of others, and the impression on my mind of its great value as an antiperiodic is very decided. It appears to me to be nearly, though perhaps not quite, equal to quinine in certainty, and the dose of it required to cure a fever to be nearly the same; the larger doses, however, of fifteen, twenty, or thirty grains, cannot be so advantageously given, as the cinchonia seems more apt to occasion nausea or vomiting than quinia. But it must be stated that in some cases the cinchonia decidedly failed, and quinia subsequently effected a cure. To add to my own testimony, I may mention that Dr. Oswald, in reporting upon the Shemogah Hospitals for 1860, says; 'I find the cinchonine disulphas very nearly, if not quite, as efficacious as quinia.' Though the cinchonia is thus so efficacious singly, it seems probable that the salts of the two principal alkaloids from the cinchona barks may be even more advantageously used in combination. A proportion which has been recommended is two parts of quinia to one part of cinchonia; but equal proportions seem to have acted perfectly satisfactorily in several cases. Resort to the use of the disulphate of cinchonia is, of course, prompted only by economical motives; for, as to safety and certainty of cure, quinia is worthy the universal confidence placed in it; but its importance in this respect, considering its efficacy, may be very great, if its production in quantity can be carried on at present prices."

15. *Arsenic in Ague*.—M. SISTACH, physician to the military hospital of Vincennes, has recently made a number of trials with arsenic in ague, and has come to the following results concerning the value of this treatment:—

Arsenic is a powerful febrifuge in recent cases as well as in such of long standing, and which are continually kept up by a paludal cachexy. It acts more rapidly in tertian than in quotidian fever, and it has an evident influence upon tumours of the spleen. Its effect is, however, dependent upon the pharmaceutical quality of the preparation, and upon the dose of the remedy. To be innocuous, the entire dose of the arsenical preparation to be given must be divided in a peculiar manner; due regard must be had to the constitution of the patient, and the dose must be diminished as soon as the paroxysm is suppressed.

M. Sistach has treated 150 cases of ague with arsenic, of which 53 were cases of quotidian, 94 of tertian, and 3 of double tertian fever: 50 of them were quite recent, 100 of long standing. Some of the patients had made the late campaign in Italy. The results of the treatment were as follows: 86 patients had no further paroxysm after the first dose, 73 had one, 25 two, and 6 three more paroxysms. There were 22 relapses, of which 9 belonged to the tertian, and 13 to the quotidian type, 8 being of recent date, and 14 of long standing.

As to the form in which arsenic should be administered, M. Sistach recommends to use it in solution, because thereby the absorption and division is facilitated, and he prefers M. Boudin's solution to all others. This is prepared in the following manner: One gramme (about 16 grains) of white arsenic is boiled with one litre of distilled water in a porcelain saucepan until the arsenic is entirely dissolved; the solution is then allowed to cool, is percolated, and the loss of water by evaporation is compensated by a fresh addition of distilled water to it; the whole is then well mixed with one litre of white wine. This liquor arsenicalis Boudini contains five centigrammes of arsenious acid in 100 grammes of fluid (1 part of arsenic to 2000 parts of liquid). Of this preparation, 60 grammes (2 ounces) are at first given per diem, and as soon as the paroxysm is suppressed, only 30 or 40 grammes should be given per diem, and the treatment be concluded with 20 grammes per diem. These total doses have to be divided into 4 parts, the first of which is taken at 6 A. M., the second at 8 A. M., the third at 2 P. M., and the last at 8 P. M. If thus administered, the remedy causes neither vomiting, colics, nor diarrhoea, nor does it exert any influence on the pulse and the temperature of the body. M. Sistach has observed that, as long as the fever was not quite gone, the remedy agrees very well with the patient at any hour, provided the dose be sufficiently small, and the appetite may even increase under its influence; but if the fever is suppressed, the smallest dose will disturb the appetite if taken immediately before a meal, and will excite vomiting if taken directly after a meal. In every case the treatment was commenced with an emetic if the stomach was out of order, and if, when the treatment had been concluded, the appetite did not return, the same was done, after which a generous diet could be allowed.—*Med. Times and Gaz.*, Oct. 5, 1861.

16. *Arsenious Acid in Large Doses as a Substitute for Quinia in Intermittent and Remittent Fevers*.—Mr. J. TURNER highly extols (*Med. Times and Gaz.*, Sept. 28, 1861) arsenious acid in large doses as a substitute for quinia. He states that after twenty years experience with that remedy he has come to the conclusion that arsenious acid possesses as great or even greater specific influence over intermittent and remittent fevers so prevalent in and fatal to the British armies in the east, than quinia; and he asserts that its exhibition in the large doses requisite is not attended with greater risk or danger to the patient, nor is a greater amount of caution necessary than its more costly remedy, for he has given ℥xx of the liq. potassæ arsenitis within ten hours, repeating the same amount the following day with success in a case of obstinate quotidian intermittence to an infant of nine months old without the slightest gastric or other irritation supervening.

Mr. Turner first employed the Fowler's solution in large doses when in medical charge of the East India Company's Steam Frigate *Nemesis* in China, in the Yellow River, and when lying off the city of Nankin, in the years 1841, '42. He subsequently employed it in Sindh, a country notorious for the virulence of its

fevers, in the years 1851, '52, and '53, and with favourable results, as the following extracts from his hospital records will show:—

"No. 1 (1851).—Some cases of fevers (hepatic) have been treated, after relieving stomach and bowels, with liq. potassæ arsenitis, which I find in these complicated affections *preferable* to quinine.

"No. 2 (1852).—I have given a fair trial to quinine in $\mathfrak{Hj}$ doses, and also, with an equally successful issue, to liq. potassæ arsenitis. Have found the certain type less easy to manage than the quotidian. $\mathfrak{Hj}$, sometimes followed by gr. x doses when fevers are intense, is more effective and less extravagant than the more frequent linikin doses; and which latter mode of treatment in India not unfrequently leads to the transport of the patient to some distant sanatorium, and for the reason—'He can't shake off the fever.'

"No. 3 (1852).—The fever cases have been treated chiefly with $\mathfrak{mxxv}$ doses of liq. potassæ arsenitis, neither gastric nor other irritation supervening. I consider this remedy an excellent substitute for the more costly quinine.

"No. 4 (1852).—During the months of November and December, consequent on the entire expenditure of the arsenical solution, I have treated fever cases with a $\mathfrak{Hj}$ dose of quinine; but for the month of January, 1853, liq. potassæ arsenitis has been employed almost to the exclusion of quinine, and with very satisfactory results, both in the European Horse Artillery and Native Artillery Hospitals.

"On my recall from Sindh to Poona, in 1853, to assume the more responsible charge of the Headquarters Horse Brigade of Artillery, the following minute I find subscribed to my report for the year 1859: 'I would not again have recourse to the large doses of quinine in fevers till satisfied of the inefficacy of the liq. potassæ arsenitis in even larger doses than the $\mathfrak{zss}$ every second hour to four or five, or even six.' Subsequently, and till my departure on furlough in March last, I rarely prescribed quinine."

"The largest quantity of the arsenical solution," Mr. J. T. says, "he has ever given, and longest continuance of administration, was an equivalent to gr. xix of arsenious acid in twenty-eight days. The subject of this treatment was a strongly-built, full-blooded recruit, about twenty-two years old, and only a few months in India, who had suffered some days previously, when on the line of march, and very shortly after admission became typhoid. When the case of this man was brought to the notice of the Superintending Surgeon, Dr. Stovell, during his visit, he was taking $\mathfrak{zij}$ of the solution during an interval of ten hours, and I intimated my intention to increase the quantity, but was reminded by this officer that the case was one 'calling loudly for quinine,' yet my patient took not a grain.

"In the above instance not the slightest gastric or intestinal irritation was present throughout, the man having been watched by my apothecary and attendants day and night. The following is the form of prescription I have usually adopted: R—Liq. potassæ arsenitis, tinct. cardam. comp. $\mathfrak{aa}$ $\mathfrak{zss}$; mucilag. g. acaciæ $\mathfrak{zij}$; mist. camph. $\mathfrak{zss}$.—M.; to be given every second hour to four or five times, the last to anticipate the expected paroxysm at least two hours—the plan experience had taught me in administering quinine. When giving Fowler's solution I recommend, as much as possible, a resistance to taking more fluids than absolutely necessary immediately after."

Mr. Turner asserts that the arsenical solution has equally tonic powers in neuralgia.

17. *Utility of Alcoholic Liquids in the Treatment of Intermittent Fever.*—M. HERARD has lately employed, with great success, *rum*, in the treatment of two cases of intermittent fever in the Hôtel Dieu, after the plan recommended by M. Jules Guyot.

The first of these patients was a woman, æt. 28, who had long inhabited a notorious ague district, and had experienced aguish symptoms, which, two or three months previous to her admission to the hospital, assumed the type of a genuine tertian intermittent. At the time that she entered the hospital, she presented the peculiar cachectic aspect of ague; her spleen was hypertrophied,

so as to extend three or four fingers' breadth beyond the border of the false ribs. She suffered from great depression, loss of appetite, headache, &c.

During the first week of her residence in the hospital, nothing was done in the way of treatment beyond the administration of an emetic. The ague showed no signs of decreasing. The next time that the shivering commenced, a *petit-verre* of rum was administered, the patient being kept in ignorance of the nature of the remedy; and, although totally unaccustomed to the use of alcoholic drinks, she expressed herself as feeling greatly comforted, and the cold fit was very much shortened. On the following day, the general sense of *malaise* seemed very much relieved, and the ague fits never returned. The cachectic complexion became soon exchanged for that of health, and the spleen resumed its natural size, though these effects, latterly, were doubtless aided by the administration of steel and a little quinine, to which remedies, however, it was evident that the amendment was not *principally* due. One single dose of the alcoholic drink, without any assistance from other remedies, seems to have stopped the ague fits once for all.

In the other case, that of a young man, æt. 25, the subject of former repeated attacks of ague, which, at the time of his admission to the Hôtel Dieu, had assumed the type of a very severe tertian, the cure was not quite accomplished by the first dose; but, on the second use of the rum, the ague fits entirely ceased, and have not returned.

M. Herard, in some clinical remarks, expressed his reliance on the treatment recommended by M. Guyot, and carried out in the above cases. In justification of this confidence, he cited, not only the authority of M. Guyot, but the experience of the inhabitants of Algeria, and of certain parts of South America, where ague is endemic, as also of the labourers employed in making the central railway of France, which traverses a district perpetually haunted by the marsh poison. These latter have learned by experience that, during the state of partial vinous intoxication, which they are apt to get into on *pay days*, they may commit with impunity obvious excesses which at other times would inevitably induce an attack of ague.—*Gazette des Hôpitaux*, July 27, 1861.

18. *Chloroform in Intermittent Fever*.—In 1857, MM. POBLACION and MAESTRE, two Spanish physicians, strongly recommended the internal use of chloroform in intermittent fever. M. RAMON ALIENZA has also tried this remedy, and gives the results of his experience in the *Siglo Medico*. He has given chloroform in 160 patients, aged from 6 years upwards, of both sexes, and of various temperaments; but especially in nervous subjects who had had one or more attacks of ague of a quotidian, tertian, quartan, or double type. An emetic or a cathartic was first given; then, from the commencement of the paroxysm, the patients took, every two hours, a spoonful of a mixture of two scruples of chloroform in nearly two ounces of water, to which half an ounce of poppy syrup was sometimes added. The general results obtained were the following: The first dose was at once followed by a sensation of warmth in the stomach and a diminution of the more distressing symptoms. The comfort produced was increased with each dose; until at last, in most of the patients, the paroxysm was reduced to one-half or one-third of its former duration. Previously, M. Alienza had often been obliged to remain a simple witness of the painful symptoms—articular, cerebral, gastric, etc.—without being able to calm them by the use of remedies, whether antispasmodic, narcotic, derivative, or antiphlogistic; but under chloroform all these were calmed. M. Alienza does not imagine that chloroform cures intermittent fever; and he has not been so fortunate as to definitely cut short the paroxysms by its use, as MM. Poblacion and Maestre say they have done. M. Alienza has had only fifteen cases of recovery without the use of any other remedy, although he persisted in the chloroform, and took every precaution for the preservation of the medicine. The benefits that he finds to arise from chloroform are, diminution in the intensity of the paroxysms; increased readiness in the disease to yield to quinine, even in smaller doses than had been given before the chloroform was used; and diminished frequency of relapses. No accidents have attended the use of the chloroform.—*Brit. Med. Journ.*, Sept. 28, from *L'Union Médicale*, May 28, 1861.

19. *Therapeutic Action of Sesquicarbonate of Ammonia in Scarlet Fever.*—Dr. JOURN McNAB states (*Edinb. Med. Journ.*, Oct. 1861) that in the spring of 1859 an epidemic of scarlet fever broke out in his neighbourhood (Bunessan, Oban). Most of the cases were of the anginose variety, though there were several cases of the simplex and maligna. "Shortly after its appearance," he says, "I was casually led to use the sesquicarbonate of ammonia as a gargle for the throat, and forthwith became deeply impressed with its beneficial effects. This led me to employ it internally, and to observe minutely the effects produced. The result of these trials and observations tended more and more to confirm and verify my first impressions. I continued to prescribe it with the greatest advantage to those who became subsequently affected, as long as any trace of the disease remained in the district. When given as a gargle, it was employed in the proportion of two drachms of the salt to six ounces of water—the throat to be gargled with the mixture every four hours. When ordered internally it was prescribed in five or ten-grain doses, according to the age and strength of the patient, and given three times a day. This system of treatment, combined with the general therapeutical indications, was as a general rule attended with marked relief, particularly if the patient was of age sufficient to become impressed with the necessity of using the gargle, and provided the disease had not already involved the throat to such an extent as to interfere with deglutition, and produce organic change and disorganization.

"The specific therapeutical effects of sesquicarbonate of ammonia in scarlet fever seem to depend upon its direct influence on the special blood-poison, from the presence of which in the system the disease arises; for, as scarlet fever is essentially the effect of a specific contagion on the system, and as the sesquicarbonate of ammonia changes or modifies the action of that blood-poison, so there is every reason to believe that the remedy acts specifically, by neutralizing the so-called *materies morbi*. But apart from any specific influence it exerts, it seems to be of essential service in the treatment of the disease, in consequence of its diaphoretic and sudorific properties, and from the circumstance that it is a prompt and diffusible stimulant, especially of the nervous system, while it possesses the advantage of not accelerating the circulation. Anasarca, which is the most common and the most formidable of the sequelæ of scarlet fever, is not so frequently experienced in those cases where the sesquicarbonate is administered in the early stages of the disease, as where it has not been given at all, or given only when the disease has reached its acmé. This favourable result is probably due to the diaphoretic action of the remedy, which, when freely administered, relieves the kidneys of the undue action they would have to perform in eliminating the blood-poison through the urine."

20. *Iodide of Potassium in Tuberculous Meningitis.*—Dr. BOURROUSSE DE LAFFORE relates in the *Moniteur des Sciences Médicales*, eight cases of tuberculous meningitis in which he used iodide of potassium with success. The dose is about four and a half grains of iodide of potassium, given every three, four, or five hours, in a little sugar and water. From fifteen to forty grains of the iodide may thus be taken in twenty-four hours. Dr. Bourrousse de Laffore prefers to add sugar when the medicine is given, as, if it be added to the mixture when it is prepared, decomposition is liable to ensue. He expects great results from this treatment.

21. *Treatment of Chorea by Sulphate of Aniline.*—Dr. JAS. TURNBULL, of Liverpool, states (*Lancet*, Nov. 16, 1861) that he has given the sulphate of aniline in many cases of nervous and convulsive disorder, and has found that it produces some very peculiar as well as useful effects. He has used it in chorea with very good effect.

"Two circumstances," he says, "led me to make trial of aniline as a medicinal agent—the fact of its being an alkaloid, from which I inferred that it would act energetically on the animal economy, and, probably, on the nervous system, and the fact of its being present in Dippel's animal oil—an old antispasmodic remedy. This oil, Pereira tells us, is undoubtedly a very powerful agent. Swallowed in moderate doses, it stimulates the vascular and nervous systems, and is esteemed

antispasmodic. It has been used, he states, in hysteria and other affections of the nervous system accompanied with convulsive movements. There are other alkaloids in this oil—pyridine, picoline, lutidine, and collidine—to which its properties may be equally due; but the fact of aniline being the chief of them was one of the reasons that led me to make a trial of the sulphate of this artificial alkaloid.

Dr. T. relates six cases of chorea, and refers to two others in which sulphate of aniline was given with success.

"The beneficial effects," he says, "of sulphate of aniline have been most apparent in severe cases of St. Vitus's dance, and the first and the sixth that I have detailed were as bad cases as any I have met with where recovery has taken place. The others were cases such as usually yield to the ordinary means at present in the hands of the profession. Chorea is a disease which is generally amenable to the means of treatment we at present possess. Obstinate cases, however, occasionally occur where the disease yields only very slowly, or even baffles our treatment altogether. I have seen it prove fatal in more than one case, and Dr. Hughes, in his '*Digest of Cases of Chorea*,' published in *Guy's Hospital Reports*, has recorded sixteen fatal cases. The introduction, therefore, of a new remedy, which appears to have a more direct and powerful influence on the disease than any we at present possess, is calculated to be of use, and I trust that it will be found worthy of the attention of the profession. It seems not improbable that it may prove a remedy of utility in other nervous affections. I have tried it in several cases of epilepsy, and in two cases it seemed to be of service; but I have not given it a sufficient trial to enable me to recommend it confidently in any other disease but St. Vitus's dance."

22. *Chlorate of Potassa in the Treatment of Consumption and Scrofula*.—In our last number (p. 321 *et seq.*), we published a highly interesting and carefully drawn up clinical report by our esteemed colleague, Prof. Austin Flint, on the treatment of consumption by the chlorate of potassa. The result of these investigations seems to throw great doubt over the remedial powers of that article in phthisis, and such has also been the experience of several other careful practitioners.

A late writer, however, Dr. ALEXANDER HARKIN, of Belfast, claims (*Dublin Quarterly Journal of Medical Science*, Nov. 1861) for the chlorate of potassa great therapeutic powers in consumption and scrofula. Our readers will, we are sure, desire to learn what he has to say on the subject, and we therefore quote his statement.

"For a period," he says, "of nearly eighteen months I have been prescribing this remedy for every variety of scrofulous disease, and for consumption in its various stages; and although, for a disease of such protracted character as consumption, the period of observation is too limited to allow of complete or extensive statistical results, yet I consider that I am justified in stating that, with this simple remedy, in conjunction with the ordinary hygienic, dietetic, and moral means, a specific will be found for consumption in its first and second stages; and that, for the last, it will be found most potent in controlling the hectic symptoms and the colliquative diarrhoea, without increasing the perspiration, as in the administration of ordinary astringent remedies. When we have only tubercular deposition or softening to deal with, this remedy has a most powerful effect. When combined with judicious counter-irritation; but I do not mean to pretend that, by any species of medication, we could, in any instance, restore a patient with large cavities in the lung, with general tubercular infiltration, ulcerated trachea, and perhaps perforations of the pleura, any more than I would propose a universal remedy for the suppurative hepatization stage of pneumonia. It is needless to argue that, if the disease be removed in the first or second stage, we need not fear the last; and, as these stages usually extend over a lengthened period, and are those in which medical men are usually first consulted, the terrors and suffering of the last stage need not so much appal us.

"The curative effects of chlorate of potass in scrofula are perfectly marvellous; for it appears to exercise double influence when aided by the assistance of lungs comparatively or wholly sound; fifteen or twenty days generally suffice to

heal the most extensive ulcerations of the cervical and submaxillary lymphatic glands; strumous ophthalmia yields immediately to its internal use, and glandular enlargements and indurations of a scrofulous character in any part of the body appear to subside with wonderful rapidity. As to its mode of administration, I have generally given it internally in doses of from five to twenty grains, dissolved in pure water, four times daily; hot water takes up readily a scruple to the ounce without after-deposition, and this proportion is perhaps sufficient for any purpose, and as much as ordinary stomachs will tolerate. I have also used it as match-paper, burning it in the bed-room before the patient retires to rest; an ointment, prepared by triturating two drachms of the powdered salt with an ounce of lard, is also very serviceable in the removal of tumours, or for innunction over enlarged joints. On the occasion of first administering it internally, in the case of consumption, I was very watchful lest it might produce bronchial irritation, or intercurrent pneumonia. I have never found any bad effects of that kind follow its use; and, further than suspending it during the existence of hæmoptysis, I have learned to give it without fear in every stage of the disease. The first effect apparent to the patient is an immediate diminution of the crepitation, and this is an invariable sign; then a feeling of tonicity and vigour imparted to the system; the colour of the skin, and particularly that of the nails, gradually improves; the cough diminishes, and diarrhœa, if present, gradually disappears. As the treatment advances, the physical signs become less marked; the area in which they have manifested themselves gradually narrows itself; the blood appears altered in character—its solid constituents, its fibrin, and red corpuscles increase; muscular energy gradually returns; and even, in some instances, a disposition to plethora of the system develops itself, inasmuch that, in several cases, patients have begged of me to permit them to diminish the dose, or refrain altogether from the use of the medicine.¹

"I have mentioned already the impossibility, in a period of eighteen months, to present many striking absolute cures in consumption. Such results, I am happy to say, are, however, occurring in several instances now under my care."

23. *Chlorate of Potash for Fetid Breath.*—Many persons complain of having bad breath, although their teeth are quite sound and due care is taken of them, and although the mucous membrane of the mouth and the gums are perfectly healthy. The disagreeable odour may in these cases proceed from the lungs or the stomach, though in nine cases out of ten it arises from the stomach. In such cases, the following is a simple, prompt, and certain remedy. Three hours after meals, a teaspoonful of the following mixture should be taken: Chlorate of potash, $\mathfrak{z}$ iss; sugar and water, $\mathfrak{z}$ iv. The mouth should likewise be washed with the solution.—*Edinb. Med. Journ.*, Oct. 1861, from *Bulletin Général de Thérapeutique*, July, 1861.

24. *Treatment of Erysipelas by Perchloride of Iron.*—The No. of the *Edinburgh Med. Journ.* for July last contains some interesting remarks by Dr. WILLIAM PIRRIE, JR., on Erysipelas and its treatment by perchloride of iron. "As the exact nature of the poison of erysipelas," he observes, "is unknown, we are not in possession of any remedy having the virtues of an antidote. Neither can any single plan of treatment yet devised be recommended as equally applicable to all cases, inasmuch as the features of many greatly differ, owing perhaps to the particular diathesis of the subject, or to his state of general health, and the circumstances he was placed in at the time of seizure, or to the peculiar type of the prevailing epidemic. That the last-named circumstance requires to be carefully weighed in every instance will at once be readily granted; for one visit to the majority of the cases of erysipelas of the head and face as now met with, will at once convince us that they are altogether unsuited for the bloodletting

¹ "In illustration of the flesh-producing power of the remedy, I may mention that a young man, a patient of mine, some three months returned from America suffering from phthisis, and then much emaciated, has gained six pounds in weight within the last four weeks."

and other powerful antiphlogistic remedies which seem to have been so beneficial according to the records of bygone observers.

"On the other hand, that the excessive stimulation so strongly advocated by some for every case of the disease in question, is not an indispensable remedial agency for successful treatment in most instances, may, I humbly think, be reasonably inferred from the multitudes of recoveries which have taken place under a more moderate use of stimulants.

"The conviction that erysipelas generally tends to a spontaneous recovery is by no means incompatible with holding the belief, that much may be done by suitable treatment to check the intensity of the disease, to alleviate or remove many of its most distressing symptoms, to maintain the vital powers, to moderate inflammatory action, and to assist the natural efforts at cure, and thus more surely conduct the disease to a favourable termination. Examples of the disease often occur, which from the first present a very unfavourable aspect, yet issue in recovery. Such recovery we may justly ascribe to the line of treatment pursued. It is, therefore, the duty of every one to place on record any plan of treatment which he thinks has been attended with success, and allow it to get a fair trial in the hands of others; to state fairly the effects which appeared to him to follow the employment of any particular remedy, in what respects it modified the intensity of the disease, and what symptoms it alleviated or controlled; without trying to deny that much is done for recovery in this disorder by the spontaneous operations of nature. It has always appeared to me, that in a careful study of this as well as other diseases, we discover certain landmarks or beacons, as it were, to guide us to the adoption of a scientific and rational method of treatment. We find, for example, that the disease cannot be cut short by any known agency, that it must run a definite course, that it early produces a most depressing effect on the system, that there are symptoms more particularly distressing than others to the sufferer, and that in due time nature employs a machinery of her own for the removal of the noxious matter from the system.

"The great indications of treatment, then, suggested by a consideration of these points, are—to uphold the powers of the system, to ameliorate or control the most distressing symptoms, to obviate the tendency to death, and to assist, if possible, the natural efforts at cure.

"The first indication is to be fulfilled by removing as speedily as possible any existing internal sources of irritation, by correcting any hepatic or alvine disorder, by rigidly enforcing thorough ventilation, with due regard to the maintenance of an equable temperature and guarding against exposure to currents, and by giving some medicine or remedies capable of imparting tone to the system and of upholding the vital powers. A marked feature of the disease, as already mentioned, is early depression of the various parts of the organism—the energy of the nervous system becoming rapidly exhausted—the vigour of the muscular system being speedily impaired—the tone of the vascular system lowered—the capillaries relaxed, and serous effusions quickly ensuing. I was induced, by the high terms in which many have written in favour of the muriated tincture of iron, recommended by Mr. Hamilton Bell, for the treatment of erysipelas, to try what effect the perchloride of iron might have on the disease. Having given it a fair trial in five successive cases, I will simply state the effects which I observed to follow, in the hope that others may give it a trial, and thus an opportunity be obtained of comparing the effects produced in different cases, and the means be acquired of arriving at some definite understanding as to its value in the generality of cases. In all the cases in which I used it, a decidedly beneficial effect seemed to be produced. The febrile condition seemed in all to be relieved, the frequency of the pulse reduced, the powers of the system generally upheld, and the stomach and bowels in no way irritated. Two circumstances I would particularly notice with regard to the perchloride in the cases in which I tried it. One which I carefully noticed was, that its use seemed in no way to be contraindicated by headache and sensorial disturbance; instead of increasing, it seemed to diminish these unpromising symptoms. The other circumstance to which I would particularly direct attention, is, that in the above cases the serous effusion was, throughout the entire course of the disease,

less copious, and also disappeared much more quickly, than in the generality of equally grave examples which I had previously seen.

"Two persons, who had a very severe attack, stated to me spontaneously, without my directing their attention in any way to the subject, that they very speedily felt a most decided general benefit from its use; and the others, on inquiry, said they 'felt it keep down the fever' and speedily diminish the 'tightness' of their face.

"The taste of the perchloride is to some very unpleasant, but it may be quickly removed by thoroughly washing out the mouth with water immediately after taking the solution. Special attention ought to be paid during its employment, to act on the bowels from time to time by some very mild laxative. What its specific mode of action is, I do not pretend exactly to know. Perhaps it may act beneficially, in virtue of powerful tonic properties, or its therapeutic value may reside in some peculiar influence it exerts on the blood, in consequence of its powerful disinfectant properties, or in its imparting tone to the capillary system, and counteracting the general relaxation of the capillary vessels. In the cases in which I used the medicine, I ordered it to be taken in quantities varying from fifteen to twenty drops every two and a half or three hours, according to the peculiarities of each case. This was persevered with till convalescence was fairly established, after which the iron was greatly reduced, and drachm and a half or two drachm doses of liquor ammoniæ acetatis ordered to be taken three or four times a day at proper intervals. The liquor ammoniæ acetatis acts very beneficially in the convalescent stage, by being a very gentle stimulant to the nervous and vascular systems, a mild diaphoretic, and an unirritating diuretic; and thus, by gently stimulating the functions of the skin and kidneys, it fulfils the last-named indication of treatment. In the course of any attack of erysipelas, just as in all fevers, the lowering effect of the disease may become so great, and the tendency to death, from failure of the vital powers, so strongly marked, as imperatively to call for the use of powerful stimulants. The employment of these agents, in this and in all diseases, to be beneficial, requires the greatest prudence and judgment in their selection and apportionment, and the most careful watching of the effects they produce. The exact form of stimulant, whether wine, brandy, or other spirit, must be determined by the particular situation of each individual case, and the previous habits of the patient.

"The delirium and coma which so often accompany erysipelas, are, according to general consent, the result of diminution or arrest of the cerebral energy, caused by mal-nutrition of the brain substance, and to be treated most successfully by the cautious use of stimulants. Cases, however, may occur in which some of the symptoms of genuine phrenitis appear, and then it might be judicious to employ some form of local depletion.

"The bronchitic attacks are to be treated by mustard cataplasms, blisters, or turpentine stupes to the chest; but the two latter I have once or twice seen irritate the renal organs very much in this disease. Should the attack supervene when the system is very low, stimulants must be given; but if during the period of convalescence, some simple stimulating expectorant, in addition to the counter-irritation, generally suffices for cure. If symptoms of œdematous effusion into the submucous tissue of the glottis and epiglottis arise, the speedy performance of tracheotomy affords almost the only chance of saving life. Of all local applications, perhaps the most serviceable and least objectionable, under all states of the skin, are flannels wrung out of hot water. This application, no doubt, is open to the objection of requiring almost constant attention, and of occasioning considerable trouble for its proper employment; but its advantages in many respects over unguents, dry powders, or other appliances, more than compensate for these slight drawbacks. When proper precautions are taken to maintain a uniform heat, by frequent renewal of the flannels, the application possesses the great advantages of being cleanly, generally agreeable to the feelings of the sufferer, unirritating to the skin, calculated to prevent any repression of the external inflammation, and not forming, as unguents and powders do, with any exudation which may have taken place, the scabs and crusts which become sources of great local irritation, and general discomfort to the invalid."

25. *Prevention of Pitting in Smallpox.*—Dr. Jos. BELL, of Glasgow, highly recommends (*Glasgow Medical Journal*, July, 1861) the application of cotton wool, saturated with the linimentum aquæ calcis, and applied to the face, &c., in the same manner as it is used in the treatment of burns, as a means of arresting the development of the variolous pustule and preventing the subsequent pitting. This plan he states he has found more successful and more free from objections than any of those hitherto employed. Besides preventing of pitting the liniment prevents the swelling of the face, and when this swelling has taken place it rapidly subsides after the use of the dressing.

Its mode of application is as follows: The liniment should be poured in on a plate; then masses of cotton wool, answering in size and shape to the parts to which the dressing is to be used, should be dipped in the liniment, and applied in such a manner as to completely cover the face and neck, leaving apertures for the eyes, nostrils, and mouth. The cotton should be closely matted together, so as to allow no crevice to exist, and a large handkerchief should be tied over all, having holes cut in it so as to correspond with the apertures over eyes, nostrils, and mouth. The dressing should be allowed to remain until convalescence, and if it becomes accidentally detached at any part it should be immediately renewed.

The great object seems to be to exclude air and light, and this dressing accomplishes this indication better, Dr. B. thinks, than any other. He has tried, he states, all the modern ectrotics, and found each more or less objectionable; for example:—

“1. The puncture of the vesicle and application of the nitrate of silver, as recommended by Serres, Bretonneau, and Velpeau, caused much pain, increased the swelling of the face, and after all proved only partially successful in preventing pitting.

“2. I tried the sulphur ointment recommended by Midivaine, and found any little benefit which arose from it more than counterbalanced by the very disgusting smell exhaled.

“3. I have employed the mercurial ointment and plaster, lauded by Oliffe and others, with very considerable benefit; but it gives the patients such a disagreeable aspect, and at the same time exposes them to the risk of salivation, that I have always used it with no small amount of hesitation. Again, when the emplastrum vigo was used, its presence was not only painful, but it also increased the irritation of the skin and augmented the swelling.

“4. The tincture of iodine, as recommended by Dr. Crawford, I have found much less efficacious than the mercury; indeed, in my experience the application of the iodine seemed to have very little effect, either in preventing pitting or allaying the swelling.

“5. The solution of collodion I found lessened the amount of pitting, but it very often increased the irritation of the skin, and consequently augmented the febrile disturbance. When it becomes dry it contracts, a circumstance which at first sight would seem to have a favourable influence on the congested vessels of the skin, by pressing as it were the blood out of them; but I found that this very pressure had the effect of acting as an irritant, and thereby increasing congestion. Again, to be of any use, the solution requires to be often repeated, because it soon breaks up and adheres to the skin in hard detached patches, the edges of which irritate the skin exceedingly.

“6. Glycerine I found of little value, because it either ran off the face, or dried up very soon after it was applied, and it appeared to me to be very objectionable from the sharp smarting which it caused.

“7. I have seen a solution of nitrate of silver and collodion in glycerine applied to the face, and undoubtedly it was very effective in preventing pitting; but it produced a most repulsive appearance, and caused considerable pain to the patient.

“8. I have employed lard, oil, and the linimentum aquæ calcis, and found that if any of them were constantly applied, no irritation was produced, and that the pitting was very much modified. But as all these substances either run off the face soon or become dry, their benefit entirely depends on the assiduity with which their application is repeated.”

26. *Methods of Preventing Pitting of the Face in Confluent Smallpox.*—During the last five years Dr. Stokes has employed gutta percha and collodion in a considerable number of cases of confluent smallpox, for the purpose of preventing pitting of the face. In most of the cases the crust came off in large flakes or patches, composed of the dried exudations and the covering material, leaving the skin uninjured. This kind of treatment was most adapted to those presenting a more sthenic type. Dr. Stokes considers that the application of poultices over the face is the surest method of preventing disfigurement in smallpox. Their use should be commenced at the earliest period, and continued to an advanced stage of the disease. In most cases they may be applied even over the nose, so as to cover the nostrils. The plan should fulfil three important indications of treatment: namely, to exclude air, to moderate the local irritation, and to keep the parts in a permanently moist state, so as to prevent the drying and hardening of the scabs. The best poultice is formed of linseed meal, which should be spread on a soft material, such as French wadding, and covered with gutta percha paper or oiled silk. The conclusions to which Dr. Stokes arrives are the following: 1. The chances of marking are much greater in the sthenic or inflammatory than in the asthenic or typhoid confluent smallpox. 2. Considering the change in the character of the disease observed during late years, we may explain the greater frequency of marking in former times. 3. In the typhoid forms of the disease the treatment of the surface by an artificial covering, such as gutta percha or glycerine, will often prove satisfactory. 4. In the more active or non-typhoid forms the use of constant poulticing, and of every other method which will lessen local inflammation, seems to be the best mode of preventing disfigurement of the face.—*Dublin Quarterly Journal*.

27. *Actea Racemosa in Acute Rheumatism.*—Dr. F. R. MACDONALD, of Inverary, extols (*Edinb. Med. Journ.*, Oct. 1861) the efficacy of the tincture of *actea racemosa* in acute rheumatism. He gives it in doses of from twenty-five to forty drops three times a day, and he says with uniform success. It is, he states, in the severest forms of the disease that the beneficial effects of the remedy are best seen.

28. *Arsenical Baths in Chronic Rheumatism.*—From the circumstance that most of the mineral waters alleged to be successful remedies in chronic rheumatism contain arsenic, M. GUENEAU DE MUSSY, of Paris, has for two years been led to try the effects of arsenical baths in this disease. He arranges cases of chronic rheumatism in two classes. In the first, the morbid process is evidently chronic in its duration, progress, and symptoms. In the other, the disease is more recent, the reactionary phenomena are less effaced, and the nervous excitability is much developed; or rather the disease, though chronic in regard to long standing and obstinacy, seems to be made up of a series of attacks of an acute or subacute nature. In the first class of cases, where the chronicity is distinctly marked, M. Gueneau de Mussy employs baths containing 100 *grammes* of subcarbonate of soda with one *gramme* (15½ grs.) of arseniate of soda; the quantity of the latter being soon increased to two *grammes*. In the second class, if there be fear of producing over-excitement, the arseniate of soda is used alone in quantities of from one to three *grammes* in a simple or in a gelatine bath.

The effects observed have been the following. Several patients, while the first baths were being taken, have complained of pain in the affected joints. Almost all have felt while in the bath, and especially on leaving it, an unusual feeling of suppleness and of power to move about. In a very small number, the first baths have been followed by diarrhœa or even by nausea; in one patient, a very moderate diarrhœa attended each use of the bath, but did not interfere with the cure. Some have had transient phenomena of excitement, agitation, and insomnia; and in some, erythematous eruptions have appeared. When the bath of both subcarbonate and arseniate of soda was administered in cases where the disease was still recent, and when the patients were predisposed to reaction and of great nervous excitability, the phenomena of excitation were more intense, and the affection of the joints assumed a more acute form for some days. These

accidents are avoided by the use of the arseniate of soda alone. No traces of the mineral have been found in the urine. At the commencement of the treatment, M. Gueneau de Mussy employs the bath on alternate days; and, when the patients have become accustomed to it, he orders it daily, omitting it for a day from time to time. The duration of the treatment varies; one patient took sixty baths, but he continued them long after he had derived as much benefit as could be expected. At the same time with using the baths, the patients take decoction of guaiacum and a mixture containing extract of cinchona and iodide of potassium.—*Brit. Med. Journ.*, Sept. 28, from *Gazette des Hôpitaux*, Aug. 10, 1861.

29. *Internal Use of Chloroform in Cases of Biliary Calculi and Hepatic Colic.* By Dr. BOUCHUT.—Following the example of Durande, many practitioners have used ether mixed with essence of turpentine in cases of biliary calculi, and in the hepatic colics which they determine. These substances have a real action upon cholesterine, which they dissolve pretty readily, and it is this solvent action which accounts for their use in practical medicine. Chloroform is, however, in this respect a much more powerful agent than ether. In the course of twenty-four hours one-half of a biliary calculus was dissolved in a saturated solution of chloroform, and the liquid became of a dark yellow colour, whilst the other half of the calculus, placed in a mixture containing the same quantity of ether, was scarcely acted upon, and the liquid remained almost colourless. This important result led Dr. Bouchut to employ chloroform in a case of hepatic colic with jaundice, caused by the presence of calculi in the biliary passages, and the treatment was followed by complete success.

Mr. V., of a sanguine temperament, had never been out of health till, in 1857, he was attacked with diarrhoea, which lasted for some months. In 1858 he was perfectly recovered, when he was attacked with violent gastralgia, unaccompanied by fever, but attended with slight mucous vomiting, and succeeded by slight jaundice. The attack lasted for two days, then disappeared, leaving his health unimpaired. From that time similar attacks, lasting for two or three days, recurred at intervals of a few months. In the month of November, 1860, and for the sixth or seventh time, violent pains in the epigastrium, shooting into the hypochondriac regions, made their appearance suddenly during the night. They were accompanied by great tension of the abdomen, and were somewhat aggravated by pressure. The pain was so severe as to make the patient cry out, and roll about in bed. At intervals it ceased for a few minutes, but only to reappear with the same violence. There were efforts at vomiting, which produced a scanty discharge of glairy matter. The countenance was depressed, the eyes were sunk, there was a faint yellow coloration of the skin and conjunctivæ, the bowels had not been open for two days, the tongue was natural, there was no thirst nor fever. These pains continued two days, and were calmed by the use of opium under different forms. After their cessation the patient was ordered to take chloroform syrup, according to the following prescription: Chloroform, $\mathfrak{z}\text{ij}$; alcohol, $\mathfrak{z}\text{ij}$; syrup. simpl. ad. $\mathfrak{z}\text{xx}$. This mixture was to be employed in such doses as that the patient should take daily half a drachm of chloroform. At the end of a month, Dr. Bouchut ordered this treatment to be discontinued, and to be replaced during a month by Vichy water. At the end of this time the Vichy water was discontinued, and the chloroform was resumed, but only to the amount of fifteen drops daily. The same treatment has been continued up to the present time, the chloroform mixture and Vichy water being administered alternately. Seven months have now elapsed, without the least appearance of a recurrence of the disease.

Dr. Bouchut has likewise employed chloroform in injection in the case of several little girls affected with chorea, and has noticed a sensible amelioration in their condition.

In order to have a stable preparation of chloroform which can be mixed in any proportion with water, wine, or syrup, Dr. Bouchut employs alcohol, which he considers much preferable as a solvent to glycerine, in which the chloroform is chiefly in a state of suspension. Dr. Bouchut's formula is one part of chloroform for eight of alcohol, and in this proportion the mixture, added to syrup,

water, or any other recipient, gives a perfectly stable preparation.—*Edinb. Med. Journ.*, Oct. 1861, from *Journal de Médecine et de Chirurgie Pratiques*, September, 1861.

30. *Treatment of Earache*.—M. EMILE DUVAL says that he has, in person, found relief in severe earache, after other means had been tried in vain, from the use of a mixture of equal parts of chloroform and laudanum; a little being introduced on a piece of cotton. The first effect produced is a sensation of cold; then there is numbness, followed by scarcely perceptible pain and refreshing sleep.—*Gaz. Méd. de Lyon*, 1 July, 1861.

31. *Researches on Resuscitation*.—Dr. B. W. RICHARDSON read before the Physiological Section of the British Association for the Advancement of Medical Science, at its late meeting, an account of his researches on resuscitation. He stated that "the idea of the possibility of restoring life after some forms of death was noticed by the Greeks, by Roger Bacon, by Harvey, by Stahl, and by Hunter. The author should define death as a condition in which respiration and the heart-beat had ceased. The only forms of death in which means of resuscitation could be used are those in which it had occurred without injury to the structures of the body—such as drowning, the inhalation of chloroform, sudden death, and suffocation by carbonic acid. The methods employed for resuscitation are artificial respiration, galvanism, injection of fluids into the bloodvessels, and artificial circulation. Dr. Richardson gave the results of sixty cases, in which simple air was used; and of experiments in which oxygen, peroxide of hydrogen, chlorine, heated air, or ozone were employed. The great point brought out was that the inhalation of air at 130° materially favoured the restoration of life when the heart had not stopped; and the author suggests that in all receiving-houses for persons apparently dead, a heated air-bath shall be kept ready. When the heart has quite ceased to beat, no artificial respiration can be of any avail. Galvanism was first used by Aldini. It could be employed for one or two purposes, such as starting respiration or the heart; but up to the present time, as employed, it has been an entire failure, and as it excites muscle, it is worse than useless, and should not be applied. The idea of injecting the bloodvessels was first thrown out during the sixteenth century; and it has been shown by recent inquiry that the injection of blood into animals even when stiffened by death, will reproduce muscular action. The author discovered that warm water will produce the same effect. The difficulties consist, as regards blood, in obtaining it; and in the case of water, in the fact that it decomposes blood after a time. The author has tried various other agents of injection, such as oxygen and the peroxide of hydrogen; but these failed from physical reasons. The author's last plan was a method of starting mechanically the blood in the dead body, or of artificial circulation. There are three methods by which this can be attempted; but they have as yet been operations of too formidable a nature to be used practically. The author's conclusions are: In cases of suspended animation, if a patient breathe at all, place him in warm air and give plenty of it; but do not meddle further. If respiration has ceased, set it up by means of bellows and warm air; continue this for fifteen minutes if necessary; for the heart may not have ceased to act, and, if not, the operation often succeeds. The common practice of using galvanism or electricity in an empirical way is unadvisable and often dangerous. The great desideratum is an improved method of producing an artificial circulation of blood, and so supplementing the heart."—*Brit. Med. Journ.*, Oct. 5, 1861.

32. *A Peculiar Form of Obstinate Vomiting in Children*.—Dr. LOMBARD, of Geneva, in a paper read before the Medical Society of that city, stated that in the course of thirty-one years' practice he has met with seven or eight cases of a singular gastric disorder in children aged from five to twelve years. The characteristic symptom of the disease is incessant vomiting, coming on without evident cause, in apparently the best health, and repeated every quarter or half hour. The vomited matter is purely watery, with some glairy filaments; it contains no bile, blood, nor food. The quantity diminishes from the commencement of the

attack; and when the vomiting continues several hours, mucus alone is at last expelled after much effort. The attacks of vomiting are accompanied and followed by intense thirst, retraction of the abdomen, considerable feverishness, and obstinate constipation. Their duration rarely exceeds forty-eight hours; they generally end in eighteen or twenty-four hours. The vomiting is generally accompanied by paleness, loss of flesh, and an appearance similar to that which is observed in cholera. The disorder has generally appeared between the sixth and seventh years of age; it seems to diminish in intensity as time advances, and rarely lasts beyond the twelfth or fourteenth year. There is a remarkable tendency in the disease to repetition; all Dr. Lombard's patients had attacks at intervals of a few weeks during several years; and in one, in whom the paroxysms were always very severe, they lasted until his eighteenth year, when, although he had been for some time free from the disorder, he was seized with incessant vomiting at the commencement and during the first stage of measles. The effect produced on nutrition is remarkable. Most of the patients remained thin, pale, and weak for a number of years; in two girls, who were under Dr. Lombard's observation many years, anæmia was so intense that there was anasarca, not only of the limbs but also of the trunk and face; and yet there was neither diarrhoea, albuminuria, nor cough; nor could the most careful examination detect any organic lesion. One case only proved fatal, in a child aged seven or eight years. At the *post-mortem* examination, the mucous membrane of the stomach was found to be perfectly healthy, without redness, softening, ulceration, or erosion; the intestine, peritoneum, and mesenteric glands were also healthy, as were also the other abdominal organs. In the treatment, Dr. Lombard has tried opiates, bismuth, nux vomica, iced milk or water, ice in pieces, and sinapisms or opiate poultices to the abdomen; but nothing has succeeded so well as total abstinence from drink or medicine. Resisting the entreaties of the patient for drink, he allows nothing to be introduced into the stomach. When the violence of the attack is somewhat assuaged, a teaspoonful of iced water may be given at long intervals, the quantity being increased to a tablespoonful; and when there has been no vomiting for eight or twelve hours, cold chicken-broth or milk may be given by spoonfuls. Great care is required in managing the administration of food; as relapses are likely to occur when it is given too rapidly or in too substantial a form. Enemata are generally required during convalescence; and, if these fail, some mild evacuant, such as castor oil or manna, should be given. With regard to the pathology of the affection, Dr. Lombard says that it is evidently not a gastric inflammation; for such a condition would not disappear so completely in the intervals between the attacks as to allow the patient to regain a certain amount of strength and *embonpoint*; besides which, the total absence of inflammatory lesion in the necropsy of the fatal case contradicts the idea of inflammation. It is not the chronic catarrh of the stomach of MM. Rilliet and Barthez; the milder form of which is characterized by alternations of constipation and diarrhoea; and the more severe by a permanent intolerance of food; nor can the vomitings be considered as purely spasmodic, or the result of a gastric neuralgia.—*Gazette Médicale de Paris*, 18 May, 1861.

33. *Serous Collections in the Female Pelvis*.—M. DEMARQUAY describes (*Gaz. Méd. de Paris*, August 31, 1861) a form of serous collection in the pelvis, connected with non-puerperal recto-peritonitis, or rather with serous pelvi-peritonitis. The true nature of these collections has, he says, been mistaken by other authors. A case in illustration is recorded. A woman came under M. Demarquay's care, on account of the sequelæ of a severe attack of metro-peritonitis. She was found to have a collection of serum in the pelvis. The uterus and bladder were pushed forwards, the rectum backwards; and the functions of these organs were notably impeded. Five hundred and twenty *grammes* of a yellow fluid were removed by a trocar, and the cavity was injected with a solution of iodine. The patient recovered perfectly. The fluid resembled closely the serum of the blood; and M. Demarquay believes that it was effused into the *cul-de-sac* of the peritoneum between the uterus and rectum, inflammation having extended to this part from the uterus. The diseases with which this serous col-

lection is apt to be confounded are peri-uterine hamatocoele, and ovarian cyst; but attention to the history of the case, and to the general and local symptoms, will establish the diagnosis.

34. *Obstruction of the Abdominal Aorta by a Clot (detached from the Left Ventricle); Gangrene of the Foot; Death.*—M. BROCA, of the Hôpital de Bicêtre, has communicated to the Société de la Chirurgie, the history of a very interesting case in which this train of events occurred. The patient was a man, æt. 61, who applied to the Bicêtre, on account of a dry gangrene of the little toe of the left foot. He was the subject of a complete paralysis of all four limbs, which had existed with but little alteration since the original attack of palsy, more than thirty years previously. During the latter part of this period, the muscles of the neck had become very weak, and, at the date of his admission, the intercostal muscles had almost entirely ceased to aid the respiratory movements. Sensibility was, as it always had been, perfect. The gangrene was dry, and strictly limited to the little toe. The arteries of *both limbs* were explored carefully from the iliac fossæ to the feet, and neither yielded any sense of pulsation whatever; yet there was no obstructing clot to be felt anywhere in their course. The limb which was the subject of gangrene in its extremity, presented no difference from its more fortunate fellow. Both limbs were of fully normal temperature: from the groins to the knees, they were about equal in this respect; at the level of the *knee*, however, the left limb was the hotter; the left foot, on the contrary, was the colder of the two. A small bed sore which existed on the sacrum rapidly increased in size during the three weeks which succeeded admission to the hospital; diarrhœa also set in, and the patient became extremely weak; still, so far, the gangrene maintained its *dry* character, and had made but inconsiderable progress; but, at this date, there commenced a rapid extension of the sphacelus, which now assumed the thence type, and rapidly engaged the whole foot, and the inferior fourth of the leg. Simultaneously with this change, the temperature from the knee downward fell sensibly *below* that of the healthy limb. The patient sank, exhausted, on the fourth day from the exacerbation of the gangrenous process.

Autopsy.—The muscles and the bones of the palsied limbs were soft and highly fatty. The brain was healthy. The anterior column of the spinal cord—from the level of the fourth ventricle to the lower part of the dorsal region—were *diffuent*, and of a milk-white colour; the posterior columns were also slightly softened, superficially.

The arterial system was almost free from atheromatous disease. The abdominal aorta was obstructed, from its bifurcation for about an inch and a half upwards, by a clot formed of two distinct parts. The larger part (nearest the bifurcation) was of a gray colour, friable, not very adherent to the walls, and was continued into the two common iliacs. Its upper surface presents an abrupt anfractuosity, *as if it had been broken off from somewhere*. The upper portion of the clot was of a red colour, a firmer consistence, and an evidently more recent date of formation, than the lower part. It obstructed the aorta as high as the origin of the last pair of lumbar arteries, when it terminated in a conical point.

In the left ventricle of the heart was formed a clot, entangled among the columnæ carneæ, and firmly adherent to the ventricular wall—which, in colour and consistence, and by its broken anfractuosity free surface, closely corresponded to the lower part of the aortic clot. It was evidently too old to have been formed during the death-agony.

The left femoral artery was pervious down to the opening in the adductor. Just above this, a very large collateral branch passed off; and from this point downwards, the femoral and popliteal artery, and the three crural branches for some distance, were obstructed by a clot, for the most part recent. M. Broca supposes that, in the first place, a portion of the cardiac clot was broken off, and carried by the stream of blood to the bifurcation of the aorta, where it lodged, becoming the nucleus for the further deposit of a more recent clot above it. That the circulation of the limbs was sufficiently restored, after the first accident, by collateral channels. That then, possibly, some fragments, detached

from the iliac clot on the left side, came to form the nucleus of a new obstruction in the left popliteal artery; and this, in its turn, produced the gangrene. M. Broca compares his case with an extremely interesting parallel one which occurred in 1849; the subject of it being an inmate of the Hôpital de la Pitié. Here, a clot was detached from the heart, and, passing into the aorta, obstructed it. From this point, a clot gradually extended downward into the right popliteal artery; obliterating it, and causing fatal gangrene of the leg.—*London Med. Rev.*, Sept. 1861.

35. *Sempstresses' Palsy*.—Under this name Dr. VAN HOLSBEEK describes an affection having a certain degree of analogy to writers' cramp (or rather to "scribe palsy"). It consists in an entire or partial loss of sensation at the end of the right thumb and index finger, with loss of power to hold the needle. Sometimes, but rarely, the finger and thumb of the left hand are similarly affected. The fingers frequently diminish in volume, and more or less rapidly lose the power of contraction. The muscles especially affected are the opponens pollicis, the flexor brevis and adductor pollicis, the first two lumbricales, and the abductor indicis. At the same time, the skin of the palmar surface of the thumb and index finger, especially at their tips, becomes insensible; and the anæsthesia frequently also affects the middle finger. This paralysis rarely appears suddenly. There is first cutaneous anæsthesia; then the electro-cutaneous sensibility is diminished or abolished, and the electro-muscular contractibility more or less diminished. The most preferable means for the treatment of this affection is electrization.—*Brit. Med. Journ.*, Oct. 12, 1861, from *Bulletin Gén. de Thérap.*, 16 July, 1861.

36. *Syphilis conveyed by Vaccine Lymph to Forty-six Children*.—This melancholy occurrence took place in the village of Rivolta, near Acqui (Piedmont). "The facts connected with this unfortunate wholesale contamination are as follows:—

Towards the latter end of May last, M. Cagiola, a surgeon, vaccinated Giovanni Chiabrera, aged eleven months, and in good health, with lymph obtained in a tube sent from Acqui. The operation was performed in the ordinary manner, and with, as M. Cagiola affirms, a very clean lancet. On the tenth day after this, forty-six children were vaccinated with the lymph contained in the vesicle of the child Chiabrera; and ten days after these latter operations, seventeen other children were vaccinated from the lymph of one of the forty-six infants just mentioned.

Hence we have sixty-three vaccinated children, forty-six of whom were more or less affected with syphilis within two months after the first operation. In the first series of forty-six vaccinations there were thirty-eight cases of syphilis, besides little Chiabrera, the child vaccinated with the lymph contained in the tube; and in the second series, comprising seventeen infants, seven were affected. The child Chiabrera was in a state of marasmus on the 7th of October, and the infant from whom the second series of seventeen had been vaccinated died a month after the operation.

These facts having come to the knowledge of the Medical Congress at Acqui, from statements made by Dr. Ponza, it was agreed that a committee, elected from amongst the members of the Congress, should proceed to Rivolta to inquire into these melancholy occurrences. From the able report of Dr. PACCHIOTTI we extract the following particulars:—

The investigations of the committee were considerably aided by the unwearied exertions of Dr. de Katt, practising in the village. It has been found that of the forty-six children affected with syphilis, the cases of only twenty-three could be accurately noted, as the parents of the children neglected to call in medical aid at the proper time. These twenty-three cases were, however, sufficient to enable the committee to come to a clear diagnosis. In the whole forty-six cases, the symptoms of syphilis appeared, on an average, on the twentieth day after vaccination—viz., varying from ten days to two months. Sometimes the vaccine vesicle, just on the point of cicatrizing, inflamed, and became surrounded with a red, livid, and copper-coloured areola, and then spread and sup-

purated anew. At other times, when the cicatrix was complete, an ulcer would form upon it, the crusts of which would fall off and fresh ones be produced. With some children the vesicles looked bad from the first, and were accompanied by a general eruption, which the country people considered as smallpox, and the characters of which the medical men of the neighbourhood were not always able to ascertain. On the 7th ult. it was discovered that seven children had died without treatment, and before attention had been directed to this unfortunately fast spreading contamination; three were in danger, and fourteen recovering, after having been subjected to a specific treatment. Thirty-eight at that period were under treatment, which consisted of frictions with mercurial ointment in the groins, axillæ, and on the limbs, with small doses of iodide of potassium in sarsaparilla syrup.

The principal symptoms noted by the committee were: mucous tubercles on the verge of the anus and genital organs; sores on the lips and fauces; swelling of the lymphatic glands in various regions; syphilitic eruptions of different kinds; loss of hair; secondary ulcerations of the prepuce; deep tubercles of the cellular tissue; gummy tumours, &c. Two children out of the twenty-three were in a wasting condition, and suffering from syphilitic cachexia; while some of the mothers had mucous tubercles on the nipples. In fact, the twenty-three cases are carefully related in the report, all the children having been seen by the members of the committee.

As to how the disease thus came to spread amongst these infants, the committee refrain from coming to a hasty conclusion, and ask for time to solve the mystery; the more so as these facts tend to no less than a complete upsetting of opinions hitherto held as very trustworthy. Thus the belief of two diseases not having the power of developing at the same time upon the same individual falls to the ground, as well as the non-contagious nature of the secondary symptoms of syphilis.

Dr. Pacchiotti, the author of the report, indulges in commentaries on this sad case, and throws out, with extreme humility, various explanations, though trusting completely to none. He invites discussion and reflection on the phenomena which have been observed. Nor does he fail to record that such transmission has been before noticed. Dr. Parola has mentioned in his work *On Doctrines Connected with Vaccination*, a case, reported by Tassani, of Milan, in which a boy, whose father had at the time secondary sores on the scrotum, was vaccinated from a healthy child. From the vesicle of this boy fifty-six children were vaccinated; out of whom, thirty-five were, in a few months, syphilitic, and had diseased their mothers. On the other hand, it should be noted, that lymph from eight of these thirty-five syphilitic children was used to vaccinate a second series of thirty-four, and *none* of the latter showed any syphilitic symptoms. Another case (which was brought before courts of justice) runs thus: In 1846, many revaccinations took place in the town of K—, where a surgeon revaccinated about ten families on account of an epidemic of smallpox; and the punctures, in three or four weeks, degenerated into syphilitic ulcers, followed soon afterwards by secondary eruptions. Hübner, in 1852, vaccinated thirteen children; of whom the greater part became syphilitic, though the rest escaped. Experiments have been undertaken by Pitton, Boucher, Ceccaldi, and Lecoq, which prove the transmission of syphilis through vaccination; whereas other experiments made by Schreier, Montain, Bidart, and Taupin, show, on the other hand, that vaccine lymph obtained from a child, evidently labouring under hereditary syphilis, produced no evil effects upon those vaccinated with it. The reporter further alludes to an important thesis of M. Viennois, 'On the Transmission of Syphilis by Vaccination;' and to the chapter on the same subject in the book of M. Rollet, of Lyons, entitled 'Clinical and Experimental Researches on Syphilis.'

From the facts related above, Dr. Pacchiotti deduces the following rules:—

1. Examine carefully the child from whom the lymph is taken.
2. Try to learn the state of the parents' health.
3. Choose, in obtaining the lymph, such children as have passed the fourth or fifth month, as hereditary syphilis, in general, appears before that age.
4. Do not use the lymph after the eighth day of the existence of the vesicle,

as the lymph on the ninth and tenth days becomes dull by mixture with pus, which latter may be of an infectious nature.

5. In taking the lymph with the lancet, avoid hemorrhage, as there is less danger with pure and transparent lymph.

6. Do not vaccinate too many children from the same supply."—*Lancet*, Nov. 16, 1861, from *Gazetta della Assoc. Med.*, Oct. 20, 1861.

37. *Rabies Canina*.—The following are the conclusions of a memoir by M. BOUDIN. 1. We may estimate the number of dogs in Europe at more than twelve millions, and the cost of their keep at a million francs per diem, or half a milliard per annum. The annual number of victims amounts to several hundreds. 2. In the immense majority of cases rabies is propagated by the bite of the mad animal, although sometimes it appears to have been transmitted by licking the skin, when more or less excoriated. 3. The perusal of the innumerable documents which have been published on the subject does not reveal a single fact capable of furnishing serious scientific proof of the occurrence of spontaneous rabies canina. 4. Even if this spontaneous occurrence ever did take place, it would do so with such rarity, that it would scarcely be necessary to take it into consideration in framing measures of sanitary police. 5. The old hypothesis, recently revived, which attributes rabies to unsatisfied genetic instinct, does not bear the slightest examination. 6. The influence attributed to the temperature and humidity of the air on the frequency of rabies is contradicted by facts. 7. The pretended rabic epizootics described by authors are only multiple instances of communicated rabies; and the term epizootic, in this case, should be excluded from the language of science. 8. We are in the possession of no positive data as to the extreme limits of the period of incubation of rabies in man. In the dog it would seem to last seven months (Youatt), and in the horse fourteen months and a half. 9. No true pathognomonic sign of rabies exists in the dog, hydrophobia, properly so called, seeming to be here quite at fault. The peculiar howling bark is of great value in the diagnosis. 10. Science is in possession of nothing certain regarding the alimentary nocuity or innocuity of the flesh of mad animals, or of the milk of cows and goats bitten by mad animals. 11. With respect to the measures of public hygiene and administrative police: (a) The tax on dogs has had the effect of diminishing their number, and so far the chances of the occurrence of rabies and hydrophobia. (b) As rabies may manifest itself throughout the year, the surveillance of dogs should never be suspended, and they should always be kept muzzled. (c) As bites have often been inflicted by muzzled dogs (20 times in 156) the proper application of the muzzle should be strictly seen to by the police. (d) Dogs which have been bitten by dogs that are either mad or suspected of being so, when not immediately killed, should be sequestered for a period, at least, equal to the known maximum of duration of the period of incubation.—*Union Médicale*, No. 136. [M. Fauvel, the French Sanitary Officer, at Constantinople, stated at one of the French Medical Societies (*Gaz. Hebdom.*, No. 45) that hydrophobia, although a very rare disease in the East, is yet occasionally met with in Constantinople, some seven or eight cases having occurred there of late years. According to the popular opinion there, rabies only occurs among the domesticated dogs, while the wandering dogs, which are numbered by thousands in that city, never become the subjects of the disease.]—*Med. Times and Gazette*.

38. *Acute Atrophy of the Liver*.—Dr. WILKS stated to the Pathological Society (Nov. 19, 1861) that this was one of the most remarkable diseases to which the human body is liable: a form of jaundice of the most acute kind, attended by symptoms of blood-poisoning and derangement of the nervous system; in which the liver is found reduced to a very small size, and to have undergone a most complete disintegration of its structure, so that sometimes on microscopic examination not a single healthy cell can be discovered. It has been shown also of late by Frerichs that a decomposition takes place, whereby new products are formed, which are carried by the blood into various parts of the body, and especially to the kidney, whose office it is to eliminate them. These crystalline bodies being discovered in the urine assist in the formation of a diagnosis of the case.

Case 1. Elizabeth K—, aged seventeen, was lately seen by Dr. Wilks, with Mr. Bisshopp, of South Lambeth, suffering from this form of disease. She had only been ill with jaundice for six days, and for the first four no very urgent symptoms were present; she then had a fit, became unconscious, and remained so until Dr. Wilks saw her. She was in a state of coma, with stertorous breathing, foam on the lips, teeth clenched, tongue brown, pulse quick, and skin jaundiced—a combination of symptoms suggesting suppression of urine as well as hepatic disease. On percussion over the liver, only a very narrow region of dulness was discovered, indicative of the great shrinking of the organ. She was a married woman, and had had some quarrels with her husband, so that a strong mental influence was discovered as predisposing to the complaint. She had also missed three menstrual periods. In the evening she miscarried, and on the following day she died.

With great difficulty permission was gained to make an incision in the abdomen, so as to remove a portion of liver, a kidney, and the uterus. The latter showed that abortion had lately occurred. The liver was very much atrophied, and when examined by the microscope, not a single healthy or entire cell could be found; nothing being observable but disintegrated hepatic tissue, oil-globules, and the crystalline bodies, such as Frerichs describes under the name of *leucine* and *tyrosine* substances, which hitherto have only been made by the chemist by artificial means. The kidney showed the tubules completely filled by disintegrated matters, and the same form of crystals. The urine, which had been drawn from the patient during life, presented casts of tubules, and, when evaporated, the substances above mentioned in very large quantities—needle-shaped crystals of tyrosine and rounded masses of leucine; the latter were mostly found in the film which formed on the surface.

Case 2. Ellen L—, aged twenty-three, admitted under Dr. Wilks' care into Guy's Hospital on June 29th, and died July 7th. She had not been married long; but quarrelling with her husband had already occurred, and she was said to be a woman of dissolute habits. For the first five days, although extremely ill, she was thought to be suffering from simple jaundice. She then, however, was seized with severe vomiting, and fell into a typhoid state; delirium came on, and she died.

The *post-mortem* examination showed ecchymoses on various organs of the body. The liver was shrunken, and lying against the diaphragm; it weighed only 1 lb. 3 ozs. (This was exhibited to the Society.) Its section showed a peculiar red and yellow mottling, always observed in this disease, and the microscope was unable to detect but very few cells which were not completely broken up.

Case 3. Elizabeth B—, aged thirty, admitted under Dr. Barlow on July 12th, and died July 14th. She was a servant, had suffered from jaundice for three or four weeks, and when the severe symptoms appeared she was brought to the hospital. She was then in a dying state, and the nature of the case was evident.

The body presented purpuric spots in various parts. The liver was shrunken, so as to weigh only 1 lb. 9 ozs.; it showed on the surface, as well as in the interior, a peculiar mixture of red and yellow colours. The tissue was quite disintegrated, so that few entire secreting cells were discoverable. The kidneys were large, and tubules gorged with dark granular and biliary matter. The urine also contained tubular casts, and masses of epithelium and pigment.—*Lancet*, Dec. 7, 1861.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

39. *Treatment of Pyæmia and Hospital Gangrene.*—By Prof. JÜNGKEN, of Berlin. These diseases are more easily prevented than cured. For prevention, it is necessary that the most scrupulous cleanliness should be rigorously carried out in the treatment of the wounded, and, where many patients with ulcerations

are congregated in rooms, thorough ventilation should be attended to. Where the surgeon has the choice, he should object to the reception of a large number of wounded persons in one common ward, as this is only too often the cause of pyæmia and hospital gangrene. Where there are no other contrivances for ventilation, the doors and windows should be opened, even if the patients complain of cold. The patients should also be frequently bathed. If the wounds are severe and the suppuration considerable, the perpetual bath is very useful for preventing these diseases; but the water should be often changed so that it does not become impregnated with the pus. Local baths, where they can be had, are also very useful; otherwise, a half or a whole bath ought to be given. Concerning local baths, Professor Jüngken condemns such tubs as are furnished with caoutchouc rings, through which the limbs are put, as, in order to prevent the water from flowing out of the tub, the caoutchouc ring must fit the limb so closely that the veins thereby become compressed, and thus a free circulation is impeded and mortification induced. If the bath is to be useful to the patient, the limb must rest in the water quite free and without any troublesome pressure. Fumigations with chlorine or vinegar are only feeble palliative means, which may be applied where no fresh and pure air is to be had. If fumigations must be made, those recommended by Guyton with chlorine are preferable to those with vinegar; but they never purify the air of sick-rooms so thoroughly as is done by fresh air, and in many patients they produce troublesome symptoms on the part of the respiratory organs.

As wars are generally undertaken in the warm, fine seasons, this being favourable to the movements of large armies, it is just at this season that great numbers of wounded have to be treated. The locality of great battles being dependent upon accidents which cannot be foreseen, the surgeon generally finds himself under the necessity to provide accommodation for the wounded in rooms not at all suitable for the purpose. In order, therefore, to prevent pyæmia and hospital gangrene under such circumstances, the surgeon ought to prescribe the air-bath, that is, to order the wounded to be placed in the open air under linen tents.

Delpêch, the great French surgeon, did not recommend the air-bath so strongly as Brugmanns, who was the first to employ it; but he erred in employing the air-bath alone, without other remedies, for the cure of hospital gangrene. According to Professor Jüngken, there is no specific remedy for this obstinate and dangerous affection, which could, exclusive of all others, effect a complete cure. Not even the actual cautery is able to do this, although it is the most powerful of all remedies offered to us for combating this affection; but even if we cauterize a gangrenous wound as deeply as possible, and the patient is still left in a contaminated atmosphere, the ulcer will again present a gangrenous aspect as soon as the eschar has come away.

The air-bath is just as important in pyæmia as it is in hospital gangrene, especially if it is possible to place the patient under trees in full leaf, the exhalations of which are known to have a beneficial effect. In many desperate cases of pyæmia and nosocomial gangrene, where every means had been employed in vain, and the patients seemed past hope, an immediate change for the better was perceived after Professor Jüngken had ordered them to be taken out of the surgical wards of the Charité Hospital, into the gardens adjoining this institution, where they were placed on a simple couch, covered with a blanket, and left in the open air for the rest of the day. Other remedies which had until then been employed in vain now took effect, and the Professor thus succeeded in saving wounded persons who must otherwise have certainly perished.

Professor Jüngken found a striking confirmation of these views during the revolution in Dresden, when a sanguinary struggle took place between the insurgents and the soldiers. Many of those wounded on this occasion were brought into the palace belonging to Count Marcolini, in which the saloons are furnished with very large windows, reaching to the bottom, and which looked upon a beautiful garden filled with splendid old lime-trees. Whenever the weather permitted, those most dangerously wounded were carried on their beds into the garden, and spent the whole day under the trees. The results were strikingly favourable. It is, after all, better that the patient should shiver a little in a cold but pure air, than that he should die in a warm but poisoned atmosphere.

It is also of great importance to prevent any intercourse between those affected with hospital gangrene and others. The bandages and instruments which have been employed for gangrenous wounds ought not, if possible, to be employed a second time, as the severity of the sufferings is thereby increased in those already affected, and others may receive the contagion in this way. Bandages, linen, or clothing, etc., should not be kept in rooms where patients so infected lie, neither should lint, etc., be prepared there. A frequent change of the bedding, blankets, and linen of such patients is also of the greatest utility.

Among the large number of local remedies which have from time to time been recommended for hospital gangrene, the more effective are perchloride of iron, the acidum pyro-lignosum, chloride of lime, hydrochloric acid, carbon powder with chloride of zinc, myrrh and camphor (R. Carb. lign. pil. $\bar{3}$; myrrh $\bar{5}$]; camph. ras. $\bar{5}$ ss; zinc. chlo. gr. v. in f. pulv.), and chloride of zinc in solution. Of all the other remedies little or nothing is to be expected. But the medicines just mentioned have not the same effect at all times. There are periods in which chloride of lime is particularly effective, and when no other remedial agents will answer the purpose; at other periods chloride of lime entirely fails, and carbon powder or acidum pyro-lignosum produce good results, so that it is probable that, in spite of the similarity and even apparent identity of symptoms observed, there must be some peculiar differences in the several epidemics of hospital gangrene, which are at present only to be recognized by the success and failure of certain remedies.

There is only one remedy for this terrible disease, which never fails the surgeon, provided it is properly used, and that the other circumstances, such as light, air, etc., are favourable: this is the actual cautery, which has of late been unjustifiably neglected, but is believed by Professor Jüngken to be the only certain and reliable means for destroying the peculiar and dangerous contagion of hospital gangrene. To neglect the actual cautery under such circumstances, is not only to do harm to the infected patients, but also to those not yet attacked, as the contagion will then no doubt spread further, and become more dangerous. The surgeon ought to be the readier to employ the actual cautery, as the patient may be put under the influence of chloroform, and thus be spared much suffering during the operation. To render this effective, the iron must be brought to white incandescence, in order that the most intense heat may be applied to the gangrenous surface; otherwise the operation is useless. It must also be applied at an early period, if possible, at the commencement of the epidemic, in order to destroy the evil in the germ. If, however, the gangrene has become strongly developed, the whole surface of the wound must, previous to the canterization, be laid bare, sinuosities and canals must be carefully divided, larger mortified parts must be removed by means of the seissors or the knife, the surface must be cleaned of all detritus, and dried by lint or sponges, so that the cautery may act upon a clean and dry surface. It must be applied especially to the edges of the ulcer, and beyond the diseased parts, in order to produce plastic reaction. Afterwards the patient must not remain in the room in which he was before; but he ought to be transferred either into the open air or in a single room, where doors and windows are open by night and day; and the bed ought to stand as close as possible to the window, even during the night, and whether the season be rough or not. The elimination of the eschars ought to be left to nature, and should not be promoted by warm fomentations or cataplasms, which relax the parts and thus favour relapses. The eschars will then come off a little later, but we have, on the other hand, the advantage of a stronger reaction, a better suppuration and formation of granulations. Gentle irritants should afterwards be applied to the surface of the ulcer.

The local applications ought to be accompanied with a suitable dietetic and pharmaceutical treatment. The strength of the patient must be kept up, and no mercury be given, the bowels being kept open by mild aperients. By strictly adhering to these rules, Professor Jüngken has for a number of years succeeded in keeping the surgical wards of the Charité Hospital, which were formerly a hot-bed of hospital gangrene, free from this terrible scourge.—*Medical Times and Gazette*, November 2, 1861.

40. *Traumatic Tetanus successfully treated by Tincture of Aconite.*—Dr. E. WOAKES relates (*British Medical Journal*, October 26, 1861) the following example of this:—

A. L—, aged 10, on the afternoon of March 6, 1860, having placed his hand over the muzzle of a gun, not knowing it was loaded, to “feel the wind” from the explosion of a cap, received the charge in the palm of the right hand, through which it passed into his face; one or more shots penetrated the left eye. Each of the metacarpal bones of the right hand was shattered, and the first row of the carpus exposed. The flexor tendons were much torn, and the palmar arches destroyed; nevertheless, it was resolved to save as much as possible of the hand, the thumb being intact. The second finger only was amputated at the carpus; all loose splinters of bone were removed; and the ragged ends of tendon, etc., were cut away. When the edges of the wound were adjusted and secured by sutures, the hand presented a compact and promising appearance. It was supported on a splint, and cold water applied.

For the following three days, he went on well; the swelling of the face, from the numerous shot wounds, was subsiding, though the left eyelids were closed and the eye painful.

March 10. Last evening about 9 P. M., he began to complain of slight intermitting pains in the injured limb. In the night he had crampy pains in the legs. At 3 A. M., the legs were drawn violently backwards in a succession of jerks. At 7 P. M., when I saw him, there were dysphagia and trismus; the teeth could not be forced more than half an inch apart; but there was no risus. He was sleepless; the pulse hard, 110; the bowels open. I prescribed two-thirds of a minim of tincture of root of aconite (prepared by Battley and Watts) to be taken every hour in a drachm of water; and three ounces of brandy during the day. The wound at the back of the hand had a sloughy appearance and was poulticed.

At 9 A. M. he took the first dose, and shortly afterwards expressed himself as much relieved. He experienced several other opisthotonic seizures during the day, but much less severe in character. After about four doses of aconite the pulse fell to 96, and was much softer.

11th. He had more spasms during the night, but the trismus had entirely disappeared. At 11 A. M., he had slept four hours; during which time he had had frequent slight spasms; he was comparatively free from them when awake. Pulse 92, firm. He was ordered to have a minim of the tincture of aconite every hour, and, during the day, two pints of milk, six ounces of wine (instead of brandy), and three eggs. The wound having improved in appearance, warm water dressing was substituted for the poultice, and from this date granulation progressed steadily.

12th. He slept five hours during the night, though, when asleep, slight spasmodic snatches occurred about every quarter of an hour. At 7 P. M., he had a severe attack of spasm, chiefly in the right arm. He says the cramps were easier the oftener he took the medicine, which he now did every half hour when in pain. Pulse 100, small.

13th. The bowels were confined. He had not so good a night, having much crampy pain. The dose of aconite was increased to a minim and a half; and the bowels were freely opened by a purge of calomel and jalap.

14th. He slept but little during the night, but has had no cramp since the bowels were relieved yesterday. He was ordered to take the aconite every second hour. At 1 P. M., he became suddenly faint, and a succession of fainting fits occurred, lasting about an hour and a half. The aconite was repeated by his attendants; it, however, only increased the symptoms; and at 3 P. M., when he was seen, his breath was laboured and slow, and he had lost all power in the sound arm. He soon revived on taking a quantity of brandy, and the aconite was now entirely discontinued.

From this time, he progressed slowly towards recovery. The left eye was lost from suppurative inflammation, the result of the shot-wounds, and is now collapsed. The hand made a good cure; and the result both in an æsthetical and practical point of view fully justifies the attempt made to save it.

Remarks.—The following remarks have been suggested during the progress of this and several other cases which have fallen under my observation. Apart from any pathological consideration, the undoubted tendency of tetanus is to wear out the vital energies of the system, while, at the same time, the disease itself runs on to its own termination; so that, as far as the issue of the case is concerned, the simple question to be decided is, which of the two shall be first exhausted, the malady or the patient. This appears to be the clinical teaching of tetanus; and its recognition will, I think, help us not a little in treating the disease. The principle just stated furnishes us with two indications; namely, to subdue the spasms if possible, but especially to obviate the tendency to death by asthenia, by sustaining the failing powers of the sufferer. Aconite, from its known effect in controlling muscular action and allaying pain, would seem, *a priori*, to be admirably adapted for fulfilling the first indication. It is not necessary to suppose that it exerts any specific antagonism to the *materies morbi* of tetanus; its beneficial effect is sufficiently explicable on the ground of its establishing an exactly opposite physiological condition—one, that is, of muscular repose; while its anodyne influence is undoubtedly advantageous. It is not sufficient simply to allay pain by narcotizing the patient; for, in all the cases I have seen, the tetanic spasms were augmented during sleep, whether this were natural or the result of opiates. And the explanation of this fact appears to be, that, the regulating and controlling powers of the brain being in abeyance, as they are during sleep, the morbidly excited spinal system is free to exercise its fullest effect.

By its restraining muscular effort, therefore, and by its anodyne properties, aconite removes or checks the symptoms, the severity or long continuance of which induces that state of asthenia so jeopardizing to the patient; and by so doing, allows of the administration of such stimulating and nourishing agents as may be thought desirable. This was well instanced in the case just detailed; the difficulty of swallowing—one of the most tiresome complications of tetanus—ceasing entirely after a few doses of the remedy. The lowering effect of aconite on the pulse was also remarkable, notwithstanding the constant administration of stimuli; though this, I believe, is a phenomenon which constantly attends the taking of aconite. Another point worthy of note, which involves also a caution, is that symptoms of poisoning by aconite ensued on the fifth day from the commencement of the drug, such as loss of power in the arms, great prostration, etc., which the friends mistaking for a continuance of the tetanic symptoms, unadvisedly repeated the medicine. The tolerance of the drug which tetanus undoubtedly causes, ceased now that the disease itself was subdued, and the usual effects of aconite in the system were becoming manifest. Fortunately, they yielded to a free use of stimulants.

41. *Abortive Treatment of Gonorrhœa and its Consequences.* By Dr. MALLET.—It is to Carmichael in the first place, and then to Debeney and Ricord, that the abortive treatment of gonorrhœa has owed its vogue, and, indeed, it may be said that it has only been extensively practised by the two last-mentioned practitioners. But after having been pretty frequently had recourse to during several years, this method seems to be becoming gradually less employed; and if we look for the reason of this change, we find facts to explain, and authorities to justify it.

By taking care to question patients affected with gonorrhœa regarding the treatment which was employed in former attacks of the disease, we in no long time obtain elements to lead us to a judgment regarding the value of the different methods of cure which have been proposed for this affection. The abortive method, by strong caustic injections, has particularly engaged my attention for some time past, and I have collected a certain number of cases in which the result has been unfavourable.

The first is that of M. E. F., twenty-five years of age, of a lymphatic temperament and a weak constitution, who contracted an acute gonorrhœa in the early part of 1860; an injection, consisting of a drachm of nitrate of silver in an ounce and a half of distilled water, was prescribed for him by an American surgeon. After intense suffering, followed by convulsions, the patient had an attack of

hæmaturia, followed by dysuria, the result of a real inflammatory stricture, and a perineal abscess supervened. It was opened by means of Vienna paste, and fortunately closed up without leaving a fistula. Since that time the urethral discharge has continued unabated, in spite of all the means which have been had recourse to; balsamic preparations, specifics of all kinds, astringents, injections, tonics, etc., have proved powerless against this gonorrhœa, and at present there can be recognized on the level of the bulb a stricture for which the patient is under treatment.

A second case bears the closest analogy with the above, and only differs from it in the fact that the patient escaped a perineal abscess.

In six other cases, of which two are still under treatment, the patients have experienced the same pain from the injection of fifteen grains of the nitrate in an ounce of water. The gonorrhœal discharge continues rebellious to all treatment, and three of them have already confirmed strictures of the urethra.

The dose of the nitrate employed in the first of these cases will be acknowledged by all to have been too large; but in the other seven cases the injection employed was that recommended by Ricord, by Debeney, and by various other writers. In two cases the injection was practised by a surgeon, and the *modus faciendi*, to which much importance has been attached, was conformable to all the rules.

The original idea of the method, substitution, is of difficult application, and this appears to be often forgotten when the injection is invariably made of the strength of 1 to 30. In this respect M. Debeney is more judicious; he has no fixed strength for his injection; and after having washed the mucous membrane by means of tepid injections, he proportions the quantity of caustic to the degree of inflammation, according to a scale which practice alone enables him to draw up. In weak doses the injection ceases to be abortive—it becomes merely a modifier of the condition of the mucous membrane of the urethra. It will readily be understood that, following the doctrine of Ricord's school, which considers gonorrhœa as a non-specific inflammation, we may readily be led to endeavour to displace it violently by a therapeutic substitution; besides, it must be confessed, the method is one as tempting to the surgeon as to the patient. If I have been led to abandon it, it is because, while real success is sometimes obtained, this method offers numerous disadvantages and well-authenticated cases of failure.

The excessive pain, carried, as in the patient first mentioned, even to convulsions, hæmaturia, dysuria—which may even go the length of retention—perineal abscesses, urinary fistula, as in a case cited by Dr. Beyran, and in another which occurred to Dr. Cullerier, all these are unfortunately too frequent, and we are surprised to see their occurrence denied by practitioners of talent. But what is of even more importance for the surgeon to be aware of than the occasional bad results, is the mode of action of the caustic injection. The inflammation of the urethral mucous membrane which we do not succeed in displacing seems to take refuge in the submucous tissue; and when we examine a urethra in which a caustic injection has been practised, we obtain the impression of a hard, resisting cord, and we look in vain for the natural suppleness and elasticity. The walls have increased in thickness, the neighbouring tissues which the inflammation has attacked are incorporated with the urethra, and it is at some point in their extent that the localized pathological process will mark the place of a stricture. Such is the opinion of all those who are called in the course of their practice to see the termination of urethral discharges. It is that of Dr. Phillips, who attributes to the abortive method a great share in the production of strictures. It is also that of MM. Cullerier and Beyran, and it has become mine, without, however, preventing me from admitting that the nitrate of silver, suitably employed, is an excellent modifier of certain conditions of the urethral mucous membrane.—*Edin. Med. Journ.*, Sept. 1861, from *Gaz. des Hôpitaux*, 6th August, 1861.

42. *Injections of Liquor Hydrargyri Pernitratis in Gonorrhœa*.—Mr. G. BORLASE CHILDS speaks (*Lancet*, October 12, 1861), in the most unqualified praise, of the efficacy of injections of the liquor hydrargyri pernitratis in gonor-

rhœa. He uses half a minim of the salt to an ounce of water, to be used three times a day. Six injections sometimes effect a cure, whilst in others the treatment rarely exceeds ten days. No other remedy is employed, except a saline aperient at first, reliance being solely on the liquor hydrargyri nitratis.

43. *Burns*.—Mr. F. C. SKEY advocates the stimulating treatment of burns first suggested by Dr. Kentish. "In July last," he states, "five men were admitted into St. Bartholomew's Hospital, with severe burns on the face, head, chest, and arms. One died immediately after his arrival. My house-surgeon, Mr. Richard Smith, was at the time ill, and the immediate charge of these cases devolved on a colleague, who applied the oil and lime-water to the arms and hands of each of the surviving men. At that moment Mr. Smith arrived, and completed the dressing by the application of a solution of nitrate of silver (ten or twelve grains to the ounce of water) to the face, neck, &c. I did not see these men till the following morning, when all four complained of severe burning pain in the arms and hands, but stated they were free from pain in the other affected parts. The stimulating solution above mentioned was applied to the upper extremities, and the relief at the expiration of about a quarter of an hour was complete. In two of the cases some pain returned on the third day, and relief was obtained by the same means. My directions are simply these: In the case of infants or young children, wash the affected surface, if not very extensive, with a solution of nitrate of silver, in strength six or eight grains to the ounce, and immediately cover up the part with a thick mass of cotton wool; in the case of an adult, from twelve to fifteen grains, unless the surface requiring the application be very large. Should pain return, the solution may be advantageously resorted to at any early stage of the treatment."—*Lancet*, Oct. 5, 1861.

44. *Incontinence of Urine in consequence of a Burn*.—A child, aged 7 years, was brought before M. NÉLATON at the Hôpital des Cliniques. Some years previously, it had been burned in the gluteal region, perineum, and the upper part of the thighs; and had since suffered from incontinence of feces. M. Nélaton observed that he had seen several cases of this kind, and gave the following explanation of them. If, in such a case, a close examination be made, an orifice is discovered, the integument of which presents a different character from that of the normal anus; it is a hole in the centre of a cicatrix, and has four resisting edges. When the finger is introduced, the opening is found to be inert, and the finger passes into a cavity of greater or less size, containing fecal matter. This cavity is not the rectum, but an accidental vestibule; and the true anus, with its sphincter, is found lying above the apparent one. M. Nélaton supposes that the ampullary dilatation is the result of the drawing down of the mucous membrane of the rectum by the cicatrix; and that, when the feces are expelled by the normal action of the rectum, a portion remains in the dilatation below the sphincter ani, and involuntarily passes off from time to time. The treatment recommended is to lay open the false anus, so as to prevent the accumulation, care being taken in the after-treatment to prevent the re-formation of a troublesome cicatrix.—*British Medical Journal*, October 19, from *Journ. de Méd. et de Chir. Prat.*, August, 1861.

45. *Shortening after Fractures of the Thigh*.—M. VELPEAU, while exhibiting a patient to his class in whom this was somewhat markedly observable, pointed out the fact that, nevertheless, there was no lameness; and the absence of this in so many cases of shortening after fracture of the femur, he observed, led him to look with little favour upon the numerous apparatus for producing extension and counter-extension in fracture of the thigh, with a view of preventing shortening. In fracture of the leg, where such apparatus is never resorted to, considerable shortening is unattended with lameness. The compensatory curvature of the spinal column, and the inclination of the pelvis towards the short limb, gradually meet the inconvenience. The most simple form of apparatus, and the attentive surveillance of the surgeon, will keep the shortening within moderate

limits, and then this will not be found to be accompanied by lameness.—*Med. Times and Gaz.*, Nov. 30, from *Gaz. des Hôpitaux*, No. 101.

46. *Dislocation of the Femur downwards and forwards, or under the Arch of the Pubes.*—Dr. E. W. HODDER, surgeon to the Toronto Hospital, records (*British American Journal*, March, 1861) a case of this very rare if not unique dislocation. The subject of it was a muscular man, æt. 22, upon whom a mass of earth fell whilst engaged in excavating a bank, at 6 P. M., Jan. 15, 1855. He was first struck on the shoulders, by which he was knocked down, and a large quantity of the earth afterwards fell upon his loins and upper part of his thigh whilst he was attempting to escape. He was brought to the hospital an hour after the accident. He then complained of great pain in the right thigh and in the region of the right hip-joint. The singular position of the limb at once attracted Dr. H.'s attention, and on making a very careful examination, "it was found that the head of the femur had been thrown downwards and inwards, completely under the arch of the pubes, the neck of the bone resting on the ramus of the pubis immediately below the origin of the gracilis muscle, and either between or through the origins of the adductors.

"When supported in the upright position, the thigh formed very nearly a right angle with the trunk, the knee being as high as the head of the bone, the leg was at a right angle with the thigh, the knee turned very much outwards, the toes turned slightly outwards and pointed downwards. When he was allowed to place himself in the position which gave him the least pain whilst standing on the sound limb, the trunk became much bent forward, the knee consequently less raised. The trochanter major could scarcely be felt, but was anterior and much below its normal position, and thrown inwards towards the mesian line of the body. One of the most striking symptoms in the case, was a remarkable concavity below the dorsum ilii, caused by the absence of the great trochanter, and by the glutens maximus, as well as the medius and minimus, being put so much upon the stretch as to render the bodies of these muscles quite flat, instead of presenting their ordinary rounded form.

"On examining the perineum and tracing the ramus of the ischium from the tuberosity upwards, a firm round projection could be felt at about the junction of the ischium and pubis. This projection was anterior to and rested upon the ramus of the ischium, and it was found to move when the leg was rotated together with the trochanter. The psoas and iliacus muscles could also be felt very much upon the stretch.

"When the patient was examined in the recumbent position the thigh was less flexed upon the abdomen, but it was more turned outwards than in the upright position. On measuring from the anterior-superior spinous process of the ilium to the upper edge of the patella, the length of the two limbs was nearly the same, the injured leg, if anything, being the longest, but the distance from the same point of the ilium to the trochanter on the two sides, showed a remarkable difference, the trochanter of the injured limb being fully two inches further removed, and to the inner and under side."

The next day at noon, the symptoms remaining nearly the same, the reduction was determined on.

"The man was placed upon a table in the recumbent position; chloroform was then administered until perfect anæsthesia was produced. A strong belt was passed round the pelvis, on the same plane as the body, for counter extension, and the pulleys were applied at nearly right angles to the vertical plane of the body, but a little inclined downwards: a round towel was also used for the purpose of dislodging the head of the femur from under the ramus of the ischium and pubis. Extension was now commenced and cautiously continued for some minutes, the muscles being extremely tense and rigid.

"The ankle was grasped by an assistant and the leg drawn towards the mesian plane. After the extension had been continued for about fifteen or twenty minutes, and the round towel used to dislodge the head of the bone, a hard grating sound was heard, followed by an indistinct snap. The force was immediately relaxed and a careful examination again made, when it was found that the head of the femur now no longer occupied the former situation under the

pubes, but that the accident had been converted into a dislocation into the foramen ovale presenting all the characteristics.

"The pelvis strap and pulleys were again readjusted, but the direction of the force was now more upwards and outwards, the ankle held by the assistant was drawn under the other and at the same time rotated, and in a few minutes the head of the bone was felt to move, and almost immediately afterwards slipped into the cotyloid cavity, with the same grating sound as when it was dislodged from under the arch of the pubes. This sound more resembled that produced by the laceration of muscular and tendinous structures than the clear snap generally heard on the reduction of a dislocated bone.

"The force required was considerable, but the patient was well under the influence of chloroform during the whole time, except at the close; and when the luxation was reduced he immediately exclaimed that the bone was in its right place and expressed himself greatly relieved.

"His legs were bound together and he was placed in bed. From this time until the 5th day of February not a single bad symptom presented itself; he gradually recovered the use of his limb, and on the day of his discharge (5th Feb.) he was able to walk very well with the use of a stick."

47. *Dislocation of the Head of the Femur into the Obturator Foramen, with Preservation of the Movements of the Bone.*—Professor SÉDILLOT, of Strasburg, has communicated a highly interesting paper to the French Academy of Sciences, on the subject of the immediate preservation of the movements of the inferior extremity in cases of accidental displacement of the head of the femur into the obturator or thyroid foramen. The difficulty or absolute impossibility of the movements of the limb has invariably been considered as the most constant symptom of recent dislocations, especially in diarthrodial joints. It seems indeed difficult to imagine how a bone extruded by some violent effort from its articular cavity, an injury necessarily involving laceration of the ligaments, muscular tension, and changes in the natural position and direction of the limb, can possibly still allow of motion, so painless and extensive as not to interfere materially with the functions of the extremity. Surgeons, therefore, have neither surmised nor admitted that a patient, suffering from dislocation, may uninterruptedly pursue his usual avocations as if he had merely undergone some slight contusion. Instances of the kind exist, however, and are deserving of notice, inasmuch as they may induce a dangerous degree of security, and lead to disastrous errors of diagnosis.

This is the object of M. Sédillot's paper, and, in support of his views, the author adduces several cases of luxation of the femur forward and downward, in which the patients were nevertheless able to walk immediately after the occurrence of the accident, and to exercise as usual, without much pain or lameness. It is, moreover, for the purpose of cautioning the practitioner against an error which might readily be fallen into in such cases, that M. Sédillot enlarges on these circumstances which have not hitherto been pointed out. When the attention of the observer is led astray by the absence of any marked difficulty of locomotion, the gravity of the injury may easily escape detection, and a minute examination of the relative changes of situation of the pelvis and femur may appear unnecessary in consequence of the apparent unimportance of the symptoms. The persistency of the movements and functions of the limb, says M. Sédillot, is accounted for by the fulcrum afforded to the head of the femur by the depth and shape of the margin of the obturator foramen. Despite the immediate and spontaneous restoration of the power of using the extremity for the purposes of progression, the leading features of the displacement are nevertheless perfectly discernible, as may be seen in the instance of a young soldier who was admitted into the hospital of Strasburg for a lameness of obscure origin, which had even been suspected of being simulated. M. Sédillot relates the case as follows:—

Case. G. P.—, æt. 18, a private in the 4th rifles, fell, while in a boat, on the 6th of October, 1860, but was unable to give any account of the circumstances which accompanied his fall. The patient continued to walk, but observed, three

days after the accident, that his right leg and thigh were slightly turned out, so as to induce a certain amount of lameness.

He was admitted into the hospital on the 22d of October, 1860, when his condition is described as follows:—

1. The right thigh and leg were slightly everted.
2. The anterior and superior spine of the ilium was found to be three lines lower than the same process on the opposite side.
3. The lateral breadth of the hips from the mesial line running along the trochanter major was seven inches on the left side, and six only on the right.
4. The distance from the mesial line of the body to the summit of the trochanter was seven inches and three lines on the left side, and ten inches on the right. (The lowering of the right side of the pelvis and the elongation of the limb must here be recollected.)
5. From the anterior and superior spine of the ilium to the summit of the patella, seventeen inches on the left side, and eighteen inches and a half on the right.
6. The circumference of the upper part of both thighs was the same, viz., eighteen inches and three-quarters.
7. Marked flattening of the right, and prominence of the left, trochanter.
8. The apparent elongation of the right leg was twenty-two lines.
9. In walking the right leg and thigh were turned outwards.
10. The right trochanter appeared to have sunk in; the furrow below the right buttock was lowered.
11. Abduction of the limb was perfectly unobstructed. But the right thigh could be brought into a line with the axis of the body when only the foot was everted.
12. The right foot could by no effort be turned inward.
13. In abduction the right thigh could be bent, but not in adduction.
14. The movements of adduction, and especially of abduction of the left leg, were singularly extensive.

Reduction.—The patient, who had taken chloroform, was laid horizontally on the uninjured side, and, for the purpose of extension, a sheet folded lengthwise was passed under the perineum, and its two ends, carried one in front and the other at the back of the pelvis, were twisted and secured; coaptation and counter-extension were performed by bending the leg and thigh, imparting a rotatory motion to the head of the bone, and finally by bringing it into adduction and rotation inwards; reduction was thus effected twenty days after the accident.

The natural shape and dimensions of the limb were entirely restored.

For six days the patient remained in bed, the right limb secured in extension and adduction, and attached to the left by a roller above the knees and malleoli.

P— was allowed to rise on the seventh day. He perceived no lameness, and three weeks after he left the hospital to join his regiment.

M. Sédillot's cases tend to show that the displacement of the head of the femur into the obturator foramen, when the movements are preserved, is characterized by an elongation of the limb of from five to fifteen lines, a symptom which is rendered more evident by the lowering of the hip-joint on the diseased side; the outward rotation of the extremity and the abduction of the foot; the prominence formed by the head of the bone in the vicinity of the pubes, and the depression existing in the spot it should naturally occupy; the impossibility of bending the thigh in adduction, and the ease with which this is accomplished when the limb is in abduction. Reduction is seldom difficult, even when the dislocation is of several weeks' standing, and is effected by traction outward of the upper part of the thigh, the knee being turned inward and forward, and placed in adduction when the head of the bone is supposed to be on a level with the acetabulum. In order to obviate a relapse, the only precaution necessary is to keep the injured extremity extended and turned slightly inward. The cure is rapid and complete. When the parts have not been replaced in their proper position, the bones adapt themselves to each other, and the patients are frequently enabled to use the limb, remaining, however, affected with permanent lameness.—*Ranking's Abstract*, vol. xxxiii., from *Journ. Pract. Med. and Surg.*, March, 1861.

48. *Lumbar Hernia*.—Dr. CHAPPLAIN, of Marseilles, describes a case of this rare affection, which has been mentioned by J. L. Petit and by a few other surgeons. A man, aged 60, was jammed between the shaft of a cart and a wall. He had, in the right lumbar region, immediately above the crest of the ilium and below the last rib, a longitudinal furrow, into which the skin was drawn so as to form a kind of purse; and at the bottom of this, the hand felt a depression. This was when he was lying in bed; but when he stood up, the place of the depression at the bottom of the furrow was occupied by a large tumour. This tumour lay between the crest of the ilium and the last rib; it was of oval form, having a horizontal diameter of about three inches, and a vertical diameter of about two inches and a quarter. The colour of the skin was not changed. If the tumour was examined when it was prominent, a fluctuation resembling that of a cold abscess was felt. But when pressure was applied, so as to put back the tumour, it was reduced with a gurgling sound. When the pressure was removed, the tumour reappeared; and it was increased by coughing. M. Chapplain points out the necessity of not mistaking the tumour in such a case for a cold abscess. The lumbar hernia may be produced, he thinks, by physical injury in persons in whom there is a deficiency in the muscular walls of the part.—*British Medical Journal*, Oct. 19, from *Presse Méd. Belge*, Sept. 8, 1861.

49. *Cancer in Muscular Tissue*.—Dr. PARMENTIER has written an article for the purpose of calling attention to the occasional original development of cancer in the substance of muscles; this being entirely distinct from the effects produced on them by cancer originating in neighbouring parts. He relates a case of cancer developed in the substance of the rectus femoris; one of cancer (infiltrated) in the gluteus maximus; and one of fibro-plastic tumour of the pectoralis major. He also gives brief notices of cases described by Warren, Bérard, and Broca. Broca, Vidal, and Gueneau de Mussy, have observed cases in which cancerous masses were disseminated through many parts of the muscular structure; and Dr. Parmentier says that the development of cancer in muscles is often a sign of a high degree of cancerous cachexia. The cancer is generally developed in the form of one or more tumours in the substance of the muscle, which push aside the fibres, rendering them more or less pale and atrophied. But there is a form of cancerous disease of muscle which has been described by Mr. Cruveilhier, that bears some analogy to a form of fatty degeneration; inasmuch, as the cancerous deposit (in M. Cruveilhier's case) was deposited in fasciculi; which exactly resembled the muscular fasciculi; the proper substance of the muscle having gradually degenerated from the cancerous matter being deposited alongside of the fibres. In this case, all the muscles of the arm were affected. The symptoms of cancer of muscles, in the ordinary form, are the following: There is, at first, a tumour, of the size of a pea, hard, movable, and yet adherent to the muscle. It may exist a long time without causing inconvenience. At length, however, it becomes as large as a pigeon's or hen's egg, is soft, elastic, and movable when the muscle is relaxed, but fixed when the muscle is contracted. If the tumour have its origin in the part of the muscle in relation with the skin and subcutaneous cellular tissue, no depression is produced in the part when the muscle contracts; but if it be seated in the centre or the deeper part of the muscle, then, during contraction, the muscular fibres press in front of the tumour like a band, and there is some flattening over the part. If the tumour be not soon removed, it rapidly increases in size, and, passing beyond the muscle, may affect the neighbouring parts. Pain may not be felt for a long time—until, in fact, the tumour has begun to affect the skin. The cancerous tumour of muscle has to be diagnosed from syphilitic tumours of muscle, hydatid tumours, and some forms of cold abscess. An exploratory puncture before the removal of the tumour is proceeded with will detect abscesses or hydatids. Syphilitic tumours begin with a local circumscribed puffiness, arising from effusion of plastic lymph between some of the muscular fasciculi; this effused matter then becomes softened. If acute inflammation set in, or if the tumour be painful at the first, pus is formed, and the muscular fibres are softened and destroyed. In other cases, the syphilitic tumours become hard. They are readily removed by iodide of

potassium. Cancer is very liable to return in muscles after removal.—*British Medical Journal*, October 19, from *L'Union Médicale*, 22d and 29th Aug. 1861.

50. *Is Inherited Syphilis Protective against Subsequent Contagion?* By JONATHAN HUTCHINSON, Esq., Ass. Surg. London Hospital, &c.—It is now generally admitted that a man who has once had an indurated chancre, and the usual rôle of secondary symptoms, is not susceptible of a subsequent contagion. In this respect, as in many others, true syphilis resembles the exanthems. The latter, however, although they protect the individual, do not protect his offspring, unless, possibly, in those cases where a pregnant woman is the patient. Now, syphilis chiefly differs from those diseases usually classed as exanthems in that all its stages are very protracted. Time is thus afforded for the offspring to suffer as well as the parent. It becomes, therefore, a very interesting question as to how far an inherited taint is protective against subsequent contagion. As far as I am aware, no attempt has yet been made to find an answer to it, and in the hope of drawing attention to the matter, I record the following three cases. They are the only facts bearing upon it which have as yet come under my notice, although I have been carefully seeking such for some years:—

CASE I. *Heredito-syphilis with clear history; Gonorrhœa and Superficial Sores; No Secondary Symptoms.*—Richard D., a lad of 19, had been under my observation for several years on account of nodes, keratitis, etc., the results of inherited taint. His mother was also under treatment for tertiary symptoms, and gave me a clear history. The boy had suffered severely in infancy. At length (1858), he one day applied at the hospital on account of gonorrhœa and superficial sores, with much swelling of the prepuce. None of the sores became indurated. He was treated solely by local remedies; and no secondary symptoms occurred. He was under my care at the Metropolitan Free Hospital. I have frequently seen him during the last two years, and am certain that he has not had any constitutional symptoms.

CASE II. *Heredito-Syphilis; Acquired Syphilis; Several Non-Indurated Sores with Suppurated Bubo; No Constitutional Symptoms.*—Edwin W., aged 20, came under my care at the London Hospital in 1859, on account of primary sores. There was a large ulcer which had destroyed the frænum, and several small circular ones on the surface of the glans, and on the roll of the prepuce close to the corona. None of the sores were indurated. In the right groin was an ulcerated bubo with livid undermined edges. He had had the sores for nearly two months, and had taken mercurry. There were no constitutional symptoms. The interest of his case belonged to the circumstance that he was evidently the subject of inherited taint in a severe form. He had suffered from interstitial keratitis in both eyes, and both corneæ were still hazy. The right iris was adherent at its pupillary edge, and this eye had, he said, been defective from infancy. The keratitis occurred when he was ten years old. His teeth presented the typical malformation; his nose was flattened, and large radiating cicatrices extended from the angles of his mouth. He stated that he was the oldest living in his family. A sister who was older died of consumption at the age of 21; she had always been ailing, and had suffered for long from "bad eyes." A brother a year younger than himself is now the subject of "bad eyes," and under care at Moorfields. I had this patient under observation for several weeks, during which he got nearly well of the local disease. No constitutional symptoms occurred.

CASE III. *Heredito-Syphilitic Diathesis well marked; Primary Syphilis acquired at Adult Age; Mercurial Treatment; No Constitutional Symptoms.*—In the following case the patient, besides being the subject of inherited syphilis, had also suffered from the acquired disease. It did not appear, however, that he had had any true constitutional symptoms from the latter; and the history made it clear that the attacks of inflammation of the eyes were dependent upon the inherited taint, rather than the acquired one. As he was not under my care during the primary disease, I am unable to state the exact nature of the sore.

William B., aged 26, was admitted under my care at Moorfields early in the present year. His aspect, teeth, etc., were most characteristic. The bridge of

his nose was flattened down, and had been so since boyhood. There were large fissures running from the angles of his mouth. The face was pitted; the upper incisors narrow and notched. His sight had been imperfect since early boyhood; the first inflammation, his mother told him, being at the age of four years. With the right eye he had never been able to see much.

The right cornea was hazy; the iris dull; and the pupil much notched by adhesions. The other eye had been the better one until the attack of inflammation, for which he came under my care; but in this, too, there had always been a corneal haze. He had, when I saw him, an acute ulcer on the outer part of the eye, attended by hypopyon. Under atropine the right pupil dilated widely, but with some notches; the other also dilated well. It was not practicable to illuminate his fundus at all well. The vitreous body appeared to contain floating films; and there were large and numerous black dots on the choroid.

The history of his acquired syphilis was as follows: Five years ago he attended the Lock Hospital for two months. He had then "clap and chancres," "a bubo formed and broke." After this, and during his attendance, he had a rash on one leg. He took pills night and morning for a month or two, and was salivated. After ceasing to attend he had no further symptoms. Two years ago he had gonorrhœa again, and was salivated by a chemist. He subsequently married; and his first child was born a few months before he came under my care. I was very anxious to see his infant, but my curiosity did not seem agreeable to him; and I could not press the matter. I have as yet had but few opportunities of seeing the offspring of heredito-syphilitic patients.

Remarks.—It will be seen that in none of these cases did the patients suffer from constitutional symptoms. In none is there any proof that the sores were of the indurated type, and in the first two it is certain they were not. As far as they go, they favour the belief that hereditary syphilis, if severe, is protective against subsequent contagion, and that its subjects are not liable to contract the indurated form of chancre.—*Brit. Med. Journ.*, Sept. 21, 1861.

51. *On Double Amputations, performed simultaneously or immediately following each other.*—J. F. HEYFELDER relates several cases in which double amputation was unfortunately necessary. In such cases the severity of the injuries sustained is so great, that they would probably terminate fatally without operation.

"Scarcely any cases," says Heyfelder, "can be produced in which patients have been saved, both of whose thighs have been amputated, *coup sur coup*, for gunshot injuries of both legs or both knee-joints." On this account, Boyer, Velpeau, and Vidal declare that the amputation of both hands or both feet is at the most permissible.

If it has been shown that the prognosis of double amputations of the lower extremities, *for injuries*, whether of the thigh or leg, is exceedingly unfavourable, Heyfelder thinks that the case assumes a different form when the double amputation is necessitated by an *organic disease*, instead of by an injury, and when an interval of five or six days elapses between the time of the first and the second operation. Thus, he twice performed successfully double amputation of both legs for frostbite, with an interval of five days. He does not lay down definite rules for double amputations, when they should be performed, simultaneously or at intervals. But he objects to the proceeding instanced by Ferguson, in which, at the same moment, both limbs are removed by two surgeons. One operator would be in the way of the other, and the measure is only justifiable during and after great battles. Heyfelder now holds a similar opinion regarding all, in some measure, important operations. In squint and in cataract it is better not to operate at once on both eyes; the same obtains in hydrocele, and the extirpation of several cystic tumours of the hairy scalp. In resection of the entire lower jaw, he advises that the removal of the second half should not be undertaken till the sublingual tissues on the first operated side have acquired new attachments. This is in order to prevent retraction of the tongue. In an article on the after-treatment of operation-wounds Heyfelder insists on the necessity of a spare diet, especially during the first five or six days, until the wound has either closed or is everywhere suppurating, when the inflammatory

tension is replaced by relaxation, and the spare diet may be changed for one more nourishing. He considers that the French and the southern races are naturally more moderate in their diet than the Germans, English, Dutch, and Russians, and that daily experience shows that erysipelas is often the consequence of an error in diet. This cause is also productive of pyæmia in patients who have been operated on at home, and who have not been exposed to hospital influences.

The first dressing of a wound ought to be left on as long as possible, and this is only practicable when it is very simple and unproductive of irritation. Sutures are preferable to strips of plaster. Ligatures should be cut off short. The custom of leaving one end and fixing it in the lower angle of the wound is neither necessary nor useful, but altogether injurious and wholly unjustifiable. After putting in the stitches, the wound should only be covered with a fenestrated piece of linen, soaked in oil, and spread with a simple wax cerate to prevent its sticking to the wound. He deprecates stuffing or covering the wound with charpie.—*N. Syden. Soc. Year-Book*, 1860, from *Deutsche Klinik*, No. 39.

52. *A Modification of the Rhinoplastic Operation.*—The operation for a new nose which some twenty years ago made so much noise, has for some time been abandoned in Paris. Artificial noses formed merely from the soft parts, M. Velpeau observed on introducing to the Academy a new operation by M. Ollier, have furnished but unsatisfactory results. The transplanted skin after a short time becomes wrinkled and misshaped, so that the unfortunate patient derives little benefit from what he has undergone. M. Ollier proposes to meet the inconvenience by keeping up the flap by means of an osseous support, which may be obtained in two manners. By the one, the periosteum is detached from the frontal bone at the same time that the portion of skin necessary for the formation of the nose is obtained. This portion of periosteum will produce a plate of bone which will suffice to prevent the consecutive sinking in of the soft parts. Or the bones of the nose may be replaced by fragments of bone taken from the face, *e. g.* the ascending apophysis of the maxillary. A patient was presented to the Academy whose nose had been restored by one of these processes, three months since, with satisfactory results.—*Medical Times and Gazette*, December 7, 1861, from *L'Union Médicale*, No. 137.

53. *Œsophagotomy.*—Prof. SYME relates (*British Medical Journal*, August 24, 1861) the following case: M. C., aged 45, was admitted into the hospital on the 22d July, 1861. She stated that six days before the time of her application, while eating mutton-broth, she had suddenly felt inability to swallow, together with severe pain, from which she concluded that a piece of bone had stuck in her throat. Under this impression, she had applied for assistance, and been treated by the introduction of probangs or other instruments, without success, so that her distress remained unrelieved, and became complicated with fits of dyspnœa, which repeatedly threatened to prove fatal. On examination, I found her in the state described, with a very anxious expression of countenance, and slight general fulness of the neck, which was not discoloured or otherwise altered, but felt somewhat tender under pressure. Having introduced the long curved forceps, without being able to touch the foreign body, but feeling satisfied, from the circumstances just mentioned, that there was one present; and fearing, that if allowed to remain, it would cause suppuration, if indeed it had not already done so, I considered it necessary to adopt the only effectual mode of affording relief, by performing the operation of œsophagotomy.

With this view, having administered chloroform, I made an incision as if for ligature of the carotid artery, exposed the edges of the sterno-mastoid and sterno-thyroid muscles, and then opened the deep fascia of the neck, from under which a small quantity of purulent matter escaped. Introducing my finger through the narrow passage thus detected, I carried it upwards and backwards to the posterior part of the gullet, where a piece of bone was felt protruding from the canal. The requisite dilatation having been made, I guided in a pair of polypus forceps, and extracted a piece of mutton bone, extremely thin, but nearly an inch square.

The operation was performed on a Thursday, and on Friday the patient seemed to be doing well; but on Sunday I was told that she had become delirious on Saturday, and appeared to be sinking. Upon visiting her, I found the hands blue and perfectly cold, with the faintest possible thrill instead of a pulse, so that the case had certainly a most hopeless aspect. It occurred to me, however, that the symptoms might possibly proceed from hunger, as the patient, during the whole week, had not been able to swallow at all, and since the bone was removed had done so very imperfectly, from the milk and other fluids given to her escaping in great part by the wound; I therefore, by means of a catheter, introduced from the mouth into the œsophagus, immediately injected some beef-tea, with wine. In the course of half an hour, there was, in all respects, a decided improvement, which, through a continued employment of the same means, repeated regularly at proper intervals, gradually increased, until recovery was completed at the end of a fortnight.

54. *Observations on the Division of the Gustatory Nerve, and on the Ligation of the Lingual Artery, in the treatment of Cancer of the Tongue.*—A paper on this subject was read before the Royal Medical and Chirurgical Society, Nov. 26th, 1861, by CHAS. H. MOORE, Esq. The principal object of the author was to revive an operation which had been devised by Mr. Hilton, once practised by him in the year 1850, and, though of much value, never again performed.¹ Amongst the many sources of the peculiar painfulness of cancer of the tongue, irritation of the fifth nerve could be assigned as occasioning the pain of so much of the tumour as was in front of the fauces, the tenderness of the ulcer, the pain in the regions of the parotid, ear, temple, and crown of the head, and the excessive secretion of saliva. All these being traceable to the encroachment of the disease on the gustatory branch of the fifth, the section of that nerve between the disease and the brain should relieve them. The cases showed such relief to be instantly afforded when the nerve had been divided.

The operation, as practised by Mr. Moore, consisted in cutting through all the soft structures on the inside of the ramus of the jaw by an incision immediately behind the last molar tooth, extending three-quarters of an inch in a direction from the angle of the jaw. The only structures which could be divided by such an incision were the mucous membrane and a part of the mylo-hyoid muscle, with the gustatory nerve descending forward between them, about half an inch from the tooth, and nearly at a right angle with the direction of the incision. It was advisable to operate with a curved knife, as the alveolar ridge might shield the nerve from the edge of a straight one, and also to cut outwards quite to the bone.

The author had operated in five cases of cancer of the tongue, three of which were given at length. The relief was immediate. Salivation, the pains and tenderness of the tongue, and the reflected irritation of the fifth nerve, were all gone at once. Soreness of the wound, with swelling, remained for some days; but after that the patients took food, swallowed, and spoke with comparative ease. They slept, and improved in general health. The tongue in each case was absolutely insensitve on the side operated on from the anterior pillar of the fauces forward, and no sapid substances aroused taste in those parts. One patient frequently, on awaking from sleep, found himself chewing the cancerous mass in his tongue between his toothless gums, but the compression occasioned him no pain. The relief was permanent so far as the gustatory nerve was concerned, but when the disease invaded the area of the glosso-pharyngeal nerve, new pain arose. One patient had been operated on in August, and had no return of pain up to the present time—a period of three months. In the last-mentioned case the author had attempted to benefit the patient, in whom extirpation was unsuitable, by withdrawing from the tumour its nourishment of blood, in addition to its nervous influence. He accordingly tied the lingual artery on the side of the disease two days after he had divided the gustatory nerve. The ulcer became paler after the operation, but neither sloughed nor healed, and in five weeks the whole tumour was perceptibly smaller than before

¹ Guy's Hospital Reports, second series, vol. vii. p. 251.

the operations. From that time the tumour began again to increase. The author had desired, upon the renewal of growth in the tumour, to tie the opposite lingual artery also, but the patient was content with the amount of ease which he was enjoying, and indisposed to incur a renewal of the pain which had followed the first operations.

Mr. Holmes Coote, after thanking Mr. Moore for his paper, said that cancer of the tongue was a disease attended with so much pain and distress, that any plan of treatment which offered a prospect of relief should be thankfully received and investigated with patience. He could not recollect an instance of permanent cure of this disease after any operation, however skilfully performed. —*Med. Times and Gaz.*, Dec. 7, 1861.

55. *Perforation of the Mastoid Process.*—The indications for the operation of perforating the mastoid process in *otitis interna*, are not yet so firmly established as is the case with other operations. It was, perhaps, too frequently and indiscriminately done at first, and afterwards entirely rejected and considered illegitimate, although there can be no doubt, that cases occur in practice, in which the operation ought to be performed in obedience to the fundamental principle, that every accumulation of pus in the tissues is to be evacuated as soon and as completely as possible, in order to prevent its noxious effects upon the neighbouring parts, and a further spreading of the inflammation. The tissues adjoining the mastoid process, viz.: the dura mater, the carotis interna, the vena jugularis interna, and the sinus transversus, are so important that a morbid process which spreads to them from the middle ear, is fraught with danger to life, independently of the circumstance that the sense of hearing may be weakened or even entirely annihilated by the presence of pus in the middle ear. Dr. von TROELTSCH, the well-known aurist of Wurzburg, believes the disinclination of surgeons to act in this instance in accordance with the principle just announced, to be due to their considering diseases of the ear as exceptional complaints for the treatment of which special rules are required. Dr. von Troeltsch, however, strongly objects to such reasoning. The cells of the mastoid process are in open communication with the cavity of the tympanum; they are covered with the same mucous membrane, and participate in all the affections of that cavity. Pus accumulates the more readily in these cells, as their communication amongst each other and with the anterior part of the middle ear, is often very narrow, so that the pus is easily shut in, besides which a large portion of the mastoid process lies deeper than the membrane of the tympanum, and the meatus auditorius. The membrana tympani may therefore be perforated, and the secretion of the cavity of the tympanum may be allowed to freely escape outwards; and this will, nevertheless, not provide an outlet for the pus within the mastoid process. If the matter which is accumulated there does not spontaneously make its way outside, by the formation of a fistula behind the ear, which sometimes occurs, the surgeon has no choice but to break through the external layer of the bone, in order to gain access to the seat of the pus; so much the more as the introduction of warm vapours into the Eustachian tube has no decided beneficial effects in severe cases, although in mild forms of this affection frequent gargling and repeated blowing in of air into the tube, by means of a catheter, may serve to prevent the case from getting worse, and may act favourably altogether. If the bony layer which has to be perforated is very thin and fragile, an ordinary buttoned probe will answer the purpose; but if such is not the case a hollow chisel ought to be used for it. Dr. von Troeltsch also says that in every case, an incision, about an inch long, behind the ear, and parallel with the concha, ought to precede the perforation of the bone, as laid down by Dr. Wilde, of Dublin. Such an incision always produces a favourable result; the bleeding being considerable. The chisel should then be inserted in the middle of the incision, at an equal height with the opening of the ear, and ought to be carried horizontally and a little forwards. In this way the dura mater and the sinus transversus are avoided, and the surgeon rapidly arrives in the large cells which are closed above and behind the cavity of the tympanum. The incision itself had best be made three or four lines behind the insertion of the concha, as, if it were made further forwards, the posterior auricular artery or its branches might be

wounded; and if the incision is made further back, there is the danger of touching the sinus transversus with the chisel. The instruments must of course be used very gently, and with interruptions, in order to allow of cleaning the wound and probing, just as during trepanning, and also to avoid a sudden piercing of the bone.

The first proposal to do this operation was made by Johannes Riolanus (1649) and Rollink (1656), who recommended it for deafness and noises in the ear, caused by obstruction in the Eustachian tube. Valsalva, in 1704, made injections through a fistulous opening which existed behind the ear; and J. L. Petit was the first to perform perforation of the mastoid process by means of a hollow chisel and a hammer. The patient's life was saved thereby. Dr. von Troeltsch knows altogether of eight cases of this operation, all of which took a very favourable turn, so that the operation is evidently not so dangerous as it is reputed to be. The second case occurred in the practice of Jasser (1776); his patient was a soldier who had for several years suffered from pain in the ear, suppuration, and deafness. A slight prominence having been formed behind the ear, Jasser made an incision one inch long behind the ear, after which very little pus came away, and it was only when he had penetrated with the probe into the cells of the mastoid process that much matter was evacuated. The pain in the ear then ceased at once, and never returned; the deafness was improved. The other mastoid process was also pierced in this patient with a trocar, for deafness, not for pain, and the hearing got better. The operation was now called "Jasser's operation." The third case is that of Fielitz. A young girl lost her hearing on one side, in consequence of an acute disease, and suffered for five years, at intervals, from an offensively-smelling discharge from the ear, which was always preceded by fever and severe pain in the ear. The mastoid process was pierced with a pointed instrument, and injections were made, after which much pus escaped. The discharge gradually ceased, and the hearing became completely re-established.

The fourth case is that of a patient under the care of Weber (1824). A peasant had suffered for three months from a very painful suppurative otitis, and as an incision behind the ear did not mitigate the pain, a trocar was thrust, three lines deep, and obliquely forwards, into the highest prominence of the mastoid process, ten lines behind the ear, seventeen lines from the upper, and four lines from the posterior edge of the mastoid process. Much pus came away; the pain disappeared immediately; the suppuration ceased four weeks afterwards; and a complete cure was the result.

The fifth case is that of Forget (1849). A young man became affected with otitis interna in consequence of a cold; copious suppuration in the ear set in, accompanied by paralysis of the facial nerve; but the latter disappeared a year afterwards. Two years after the commencement of the illness, the patient became completely deaf on this side, and the neighbourhood of the ear was greatly tumefied. The mastoid process was then pierced by means of a hollow chisel, and much pus escaped. A month afterwards a sequestered bone, three centimètres high and two centimètres thick, was removed, and from that time the patient began to improve, the suppuration ceased, and the hearing returned.

The sixth and seventh cases occurred in the practice of M. Follin, of Paris (1859). In both cases there was a fistulous opening, which was dilated by that surgeon by means of the trephine; six weeks afterwards the cure was complete. The eighth and last case is one of Dr. von Troeltsch himself (1860). A girl, aged 10, complained the second day after the eruption of the scarlet rash, of violent pain in both ears, which continued to increase until the fifth day, and then began to diminish, in consequence of a discharge from both ears having set in. The fever took its regular course. The discharge from both ears continued, and after some time the pain became again severe, especially behind the right ear, where a slight swelling was also seen. Three weeks after the commencement of the illness, the pain became most intense, and was accompanied with headache and deafness. Pressure on the mastoid process augmented the pain; the skin on the right side was slightly reddened and the whole neighbourhood behind the ear, and the upper and lateral region of the neck were diffusely swelled. Both meatuses were filled with thin pus, after the removal of which their walls appeared

to be tumefied; and in the background a drop of water was seen pulsating—an evident sign that both membranæ tympani were perforated. Injections of lukewarm water were then made four times a day; and after the injection, a weak solution of acetate of lead (five drops to one ounce) was dropped in; while mercurial ointment was rubbed in, round and chiefly behind the ear. During the next few days the discharge was not lessened, and the pain very much increased, the swelling behind the ear became more considerable, was very painful on pressure, and felt œdematous; no fluctuation was perceived.

Six days afterwards, an incision, one and a-half to two inches long was made behind the insertion of the concha and parallel with it down to the bone. The bleeding was profuse, and pus appeared immediately afterwards in the level of the external opening of the ear. In the evening after the operation violent pain was felt in the wound, but no longer in the ear; there was no fever. The swelling behind the ear became less on the following day, but again increased on the second day, when the pain also became more violent, and the discharge less abundant; on pressure behind the ear, pus escaped from the meatus. Two days afterwards Dr. von Troeltsch tried to penetrate the incised wound, which had already become narrowed, by means of a buttoned probe. In this he succeeded only for three lines and he therefore continued perforating with the probe, and afterwards placed a piece of charpie as deep as possible into the opening. Soon afterwards much pus, at first thin and afterwards thick, escaped from the opening while only a trifling quantity was discharged from the meatus. On the next day the patient felt better, the pain had entirely disappeared, and the hearing was improved. Injections were now made daily; the probe could penetrate an inch deep and the injected water escaped through the meatus, until about two months afterwards all discharge had ceased, and the recovery was complete. The girl died eighteen months afterwards, of tuberculosis of the lungs.

The *post-mortem* examination showed the following condition of the organ of hearing: On the right mastoid process a cicatrix was seen, which corresponded to the incision, and from this proceeded a canal in the mastoid process, with smooth walls, in the form of a cone, with its base behind, passing from behind forwards, four millimètres long, and closed inside. The external meatus was not pathologically changed. The mucous membrane of the tube was pale and covered with a little mucus; the narrowest part of the tube was abnormally dilated; its osseous part was cylindrical and also dilated. The posterior half of the membranæ tympani was wanting, except a small strip behind and above. The anterior part of the hole was drawn inwards, and grown together with the opposite wall of the cavity of the tympanum. The manubrium mallei was drawn inwards, and firmly soldered to the wall of the labyrinth. The cavity of the tympanum, therefore, consisted, properly speaking, of two parts, the anterior of which, lying before the manubrium, was connected with the tube, the posterior with the meatus. There was no communication between these two parts, so that water injected through the meatus did not penetrate into the tube. The posterior half of the cavity of the tympanum which communicated with the meatus was also completely closed, posteriorly and superiorly, towards the mastoid process. The stapes was grown together with the upper part of the perforation, but it was movable, and its joint with the crus of the incus was not severed. The malleus and incus were also movable. Between the head of the malleus and the ostium tympanicum of the tube there was a firm and strong band, horizontally situated, which contained the tendon of the tensor tympani muscle. This band connected the inner and the outer wall of the cavity of the tympanicum, and communicated with the exudations separating the cavity of the tympanum in two halves.

At the left side the meatus did not contain any abnormal secretion. The upper part of the tube was abnormally dilated. The posterior half of the membranæ tympani, close to the manubrium of the malleus, showed an indented perforation of the size of a grain of hemp, the posterior edge of which was grown together with the opposite wall of the cavity of the tympanum and with the capitulum of the stapes. A series of rather succulent adhesions connected the upper and anterior part of the membranæ tympani with the tendon of the tensor tympani muscle and the opposite wall of the labyrinth. A thin but firm adhesion was

seen backwards. The mucous membrane of the cavity of the tympanum was thicker, softer, and contained more blood than usual. All the ossicles were freely movable. The cells of the mastoid process were fine, its meshes filled with a reddish yellow liquid, which only contained a few small cells with several nuclei and exudation corpuscles. The history of this case gives another striking proof for the fact, that very considerable changes may take place in the membrana tympani, and, nevertheless, the hearing of the individual concerned may not be seriously affected.—*Medical Times and Gazette*, September 28, 1861.

56. *Lithotripsy*. Mr. F. C. SKEN makes the following interesting remarks relative to some cases of lithotripsy that have fallen under his observation at St. Bartholomew's Hospital:—

"A man aged 68, admitted in November last, had suffered from symptoms of stone for three years, during which he had passed about 100 small stones, varying in size from that of a large shot to that of a pea. I broke the stone by eight several operations, each of which was unproductive of serious pain, and was followed by more or less relief. A small fragment only remained in the bladder. After the last operation, which was not characterized by any remarkable feature, he had rigors, vesical pain, and low fever, and he died. The post-mortem examination revealed disease of long standing in both kidneys.

"A boy, aged fifteen, admitted in October, had had symptoms of stone for two years. I crushed the calculus, which I presume to have been about the size of a large almond, twice only, at an interval of ten days. The boy left the hospital well.

"A boy, aged ten, admitted in January, had suffered from symptoms of stone for three years, during which he is reported to have had several attacks of retention of urine. His urethra being large, and readily dilatable, I decided on treatment by lithotripsy, and for which I had a small lithotrite made. The stone was crushed twice, without pain. On the following morning a fragment of stone became impacted in the urethra, and retention supervened. No alternative remained but lithotomy. As I was unable to pass a staff into the bladder, I cut down on the urethra without it, and, having removed two large fragments of stone from the canal, I opened the bladder by the aid of a staff, and expelled the residue of the calculus by injection. More than half the stone had lodged in the urethra. The boy recovered. I freely confess the attempt to remove a stone from the bladder of a boy ten years of age by lithotripsy to have been an error in judgment. The first fragment that escaped was of considerable size, and at once blocked up the canal. The rule I have consequently adopted for my own guidance is, never to operate with the lithotrite unless the urethra will admit a catheter of the size of No. 9 or 10. In this patient's case the lithotrite was No. 6, though the urethra was dilatable to about No. 7, or perhaps 8.

"A man, aged seventy-two, was admitted in May, from whom I had removed a stone by lithotripsy in 1851. The peculiarities of this case were connected with the physical qualities of the stone itself, from which arose a very protracted term of treatment. I operated on him no less than seventeen times. The calculus was of lithic acid composition; and I may remark, after some considerable experience of the operation of lithotripsy, that the hardest calculi I have ever broken have consisted of lithic acid, and not of oxalate of lime. I never once *crushed* this patient's stone; I only broke it into small fragments. No part of it was ever reduced to powder, as in other examples; but the entire stone, when finally collected, consisted of a multitude of fragments of nearly equal magnitude—about that of a large shot. The force of the screw required to break the stone continued very great up to nearly the last operation. On several occasions I came to apparently a dead lock, and it required all the power at my command to screw the instrument home. Notwithstanding this force, at the termination of the case the blades of the lithotrite did not indicate more than a very slight strain in the workmanship, so perfect is the material of which these instruments are constructed.

"There are, in my opinion, comparatively few cases of calculus in which the operation of lithotripsy is not available. It may be most efficiently performed

by any person possessed of ordinary skill and knowledge, and I earnestly join in its advocacy by the greatest of our modern surgeons.¹—*Lancet*, Oct. 5, 1861.

57. *Operative Treatment of Peritonitis.* By Dr. MARTEN, of Hürde.—In full consciousness of the insufficiency of my powers, and resting on two cases briefly noted in the course of a laborious practice, I can only aim at inviting the reader to repeat the following investigation of a morbid process, which, so far as I am aware, has not of late years been thoroughly worked out in German dissertations and monographs—at the same time calling attention to some voids, particularly the analogy of peritonitis with inflammation of other serous membranes, and especially of the pleura, promoting the plan of operative treatment, and submitting *gastrotomy in abdominal empyema* to the examination of competent judges. Far from believing that I am bringing forward anything new, as all manuals of special pathology and therapeutics mention surgical interference in circumscribed peritoneal abscesses—and Lebert² even warns us not thereby unseasonably to disturb the accumulation of effusion tending towards the bowel, the bladder, or the vagina—I will rather support the application of some old rules of general oncology to inflammation of the peritoneum, and adopt Leubuscher's words:³ "When by considerable increase of the effusion very great difficulty of breathing arises, and paralysis of the diaphragm is to be feared, paracentesis may become necessary as a vital indication, though in continued inflammatory irritation it affords much fewer chances than in simple dropsy."³

My two cases are: 1. Lina Lessing, aged 10 years, a slender child, born of healthy parents, and having hitherto always enjoyed good health, took ill suddenly on the 12th of May, 1858, in consequence of cold, with symptoms of general peritonitis; violent persistent pain over the whole abdomen, which latter could not bear the slightest touch, was hot and tense; vomiting, constipation, interrupted and rapid respiration, constant fever, with the pulse at 120. Copious local abstractions of blood, in combination with the use of opium, produced only transient relief, until on the 18th, with slight remission of the fever and pain, an effusion took place into the sac of the peritoneum, demonstrable throughout three fingers' breadth above the pubis by distinct fluctuation and a dull sound on percussion, and altering its level on change of position. Under the exhibition of half a grain of calomel every two hours, the effusion had on the 31st with remission of pain ascended above the navel, the latter projecting in the form of a thimble, and the abdomen being so distended that it presented the appearance of a six months' pregnancy in miniature. On the 3d of June, a small, round, yellowish-gray transparent spot had formed on the point of the navel, into which I passed a Langenbeck's insect-needle to behind the lancet-shaped extremity, and in drawing it out somewhat enlarged the puncture. About a pint of creamy yellow, not fetid pus, was immediately discharged in a full stream, mixed with a few little flakes and thicker coagulated lumps. Under the use of warm cataplasms and Stromeyer's oiled tents, the discharge continued in constantly diminishing quantity until the 8th, when the navel had resumed its normal shape, a little serous fluid trickling from the opening from time to time. The patient having been put upon strengthening diet, the opening had on the 15th closed; the sound on percussion over the whole abdomen was again tympanitic, digestion was normally performed, the bowels were regular, and the child to be considered as well.

2. Augustus Bennekamp, aged 5 years, the child of healthy parents, enjoyed good health until the 9th of January in the present year. He then took ill, without any assignable external cause, of acute peritonitis, which, after seven days' antiphlogistic treatment, assumed a chronic form; the vomiting ceased, the appetite and the action of the bowels gradually returned, the fever continued in a remittent form. The abdomen remained distended, and was very painful to

¹ Handbuch der Practischen Medicin, Band ii. p. 410.

² Med. Klinik, Band i. p. 608.

³ Compare also Hensch, Klinik der Unterleibskrankheiten, Band iii. p. 328; and Siebert, Diagnostik der Krankheiten des Unterleibes, p. 176.

the touch; and on motion, there was fluctuation, and a dull sound on percussion in the lower part of the abdomen, while the discharge of urine continued undiminished. The free effusion, the level of which varied with the position of the patient, in this case ascended to the navel, though the latter was not at the end of the fourth month prominent; the *linea alba*, on the contrary, projected in a boat shape. Notwithstanding that his appetite continued good, the patient was worn to a skeleton. Rigors were observed neither in this nor in the preceding case. Both outward and internal remedies having failed, and the parents having refused to allow surgical interference, our efforts were now confined to regulating the functions and supporting the strength. At last, on the 5th of June, spontaneous rupture took place; through a small opening in the navel some ounces of ordinary pus were first discharged, then a serous fluid mingled with yellowish-gray, non-focal, crumbling flakes, alternating with pus. Under bad management the opening from time to time became obstructed; the pus became inspissated; and the following state exists to-day: The chylopoietic functions are nearly normally performed; the strength is so far restored, while the fulness increases, that the little patient can walk some steps. The lower half of the abdomen, particularly in the *linea alba*, is still distended, painful, and hard. The sound on percussion is there dull; fluctuation is no longer perceptible; the lower half of the navel is closed; a serous fluid occasionally trickles forth. The possibility of complete recovery is not to be denied; nevertheless the chronic stage includes the further dangers of fresh inflammation, perforation, adhesions, pyemia, and hectic. In my opinion the seasonable opening of the abscess would have justified us in expecting a more rapid, more certain, and more perfect cure.

The question whether, in this case, we had to deal with a general or circumscribed peritonitis, I pass over, because, as Leubuscher¹ correctly remarks, "where the disease is of general extent, we can suppose only that a proportionally greater part of the peritoneum is attacked." Incomparably more important does it appear in practice to diagnose the quality of the effusion, the empyema abdominis, as the result of an extensive so-called general peritonitis, and for this we have sufficient data.² As original forms of the exudation, Bamberger describes³ the fibro-serous and the hemorrhagic. When, in the first form, the quantity of the fluid portion is so considerable as to give a distinct feeling of fluctuation, it is, in the first place, to be borne in mind that Wintrich,⁴ in pleuritic effusions, has, even after only five hours, "always" demonstrated a great number of pus-cells; and, secondly, that tolerably reliable symptoms may be discovered, indicative of the resorption of the serous portion, or of puriform metamorphosis.

2. The hemorrhagic exudation arising from dissolution of the blood or erosion of a bloodvessel, is, when it occurs in considerable quantity, to be distinguished by the preceding and accompanying illness, and the anemia; and in case of purulent metamorphosis, the diagnosis will present no great difficulties. For the change into tuberculous and cancerous exudation, the well-known diagnostic elements obtain; and an ichorous effusion is to be suspected, when puerperal, pyemic, septic processes, or perforations, more or less rapidly induce a fatal result.

The purulent nature of the effusion must, on the contrary, I believe, be inferred in practice, when, after the first acute stage of peritonitis has passed,

1. The distinctness of the fluctuation; and,
2. The quantity of the exudation, remain stationary or increase; consequently,
3. The boundary of the dull sound on percussion ascends in the upright position; and,
4. Exhibits a change of level according to the position of the patient.

Rigors and remission of the spontaneous pain, while sensibility to touch and motion continue, insure the diagnosis and justify the name of empyema abdomi-

¹ Loc. cit., p. 599.

² The possibility of confounding this disease with ascites, an ovarian cyst, and abscess of the abdominal wall, or with the distended bladder, seems scarcely to be apprehended.

³ Virchow, vi.

⁴ Virchow, Bd. i. p. 231.

nis. If in addition there be a circumscribed projection of the abdomen, the empyema necessitatis, and the time and place for opening the abdomen are at the same time determined.

If we follow the fate of the pus in the sac of the peritoneum, four possibilities occur to us:—

1. Resorption. The critical evacuations of large deposits of pus through the rectum and bladder, assumed by the older pathologists as occurring without perforation, do not appear to be confirmed by exact observation. (Abundant sediment of urates in the cooled urine redissolved on heating the fluid.) But should we not deny the possibility of such a result in the case of moderate deposits of pus, which might have arisen through the confluence of circumscribed abscesses, we must, on the other hand, remember that it involves the great danger of pyemia and phlebitis.

2. Enucleation, thickening, and cretaceous metamorphosis. In this result, too, the maintenance of life and perfect recovery are by no means certain, as occasion may thereby be given to the development of inflammatory exacerbations, to purulent absorption, as well as to different diseases of the intestinal tube and of the other abdominal viscera.

3. Perforation of various hollow organs, in which perfect recovery most rarely occurs—death, on the contrary, being by far the most common result, as the contents of the abscess may be discharged into the cavity; and, on the other hand, in the absence of Roser's valvular apparatus, the contents of the latter or the atmospheric air may obtain access to the former, and induce ichorous decomposition.

4. Direct evacuation of the abscess externally, to lead in particular cases to the discussion of which problem of art is the object of these pages. Richter's remark¹ is undoubtedly to be quoted here: "Thus we have sometimes found an absolutely milky fluid in the cavity of the abdomen, and observed that the disease arose merely from a metastasis of milk. In such a case we have nothing to do but to evacuate this fluid. The disease never appears again, when once it is removed. Operation is the only means required for the total removal of the disease." Accurate examination would perhaps have led to the discovery of creamy pus in the milk. These results may be combined with one another.²

Statistical investigations as to the frequency of each of these results are the first desiderata; secondly, their pathological anatomy in reference to the formation and reformation of the membranes, as in my first case after recovery the movements of the intestine were in no way impeded, and the serous membranes therefore appeared to be wholly restored.³ The resorption of the fibro-serous and of the hemorrhagic, as well as of the purulent exudation, would manifest itself by the opposite signs:—

1. By disappearance of the fluctuation; and,
2. By decrease of the quantity of the effusion: therefore,
3. The boundary of the dull sound on percussion sinks, or becomes partially circumscribed; and shows,
4. No change of level according to the patient's position.

Palpation of the more solid and tumour-like exudation, and the great improvement in the general health, will in this case confirm the diagnosis. The indications for operative interference in empyema abdominis may be stated analogously to those for thoracocentesis:—

1. The indicatio vitalis laid down by Leubuscher, and quoted above—insufficient respiration and threatening paralysis of the diaphragm, through considerable increase of the exudation—will, in my opinion, provisionally hold good only where the effusion is of puriform quality.

2. The empyema necessitatis requires immediate opening.

3. When, after the expiration of the first acute stage of inflammation and remission of the fever, and notwithstanding the adoption of suitable treatment,

¹ Wundarzneikunde, Band v. p. 125.

² Compare Rokitsky, Path. Anat., Band vi. p. 172.

³ Compare Volz, on Perforation of the Vermiform Appendix caused by Alvine Concretions, &c., p. 61.

resorption is too long about setting in, and the considerable effusion remains stationary or increases, the time we may wait can in general not be even approximately fixed, and depends upon the state in other respects of the patient, the degree of marasmus, of the secondary dropsy, &c.

The contra-indications which present themselves are:—

1. The acute stage of inflammation;
2. Considerable complications: thus, the puerperal process will exclude all manual interference.¹ Whether in many cases of perforation of the intestine where the situation of the lesion can be accurately defined, particularly after typhlitis and inflammation of the vermiform appendix, an incision (colotomy) would not afford a better prospect, and be more rational, than the *opium entanatotodes*, I shall not venture to decide.²

As to the prognosis, I have nothing to say beyond the general well-known principles.

With respect to the choice of the place for operation, in empyema necessitatis this is given; under other circumstances the linea alba, or the part which is most prominent and yields the most distinct feeling of fluctuation, is to be preferred.³ In Dieffenbach's warning and apprehension,⁴ I cannot participate: "We should avoid," he says, "puncturing the navel, when the skin is protruded or attenuated. In such instances the wound heals with difficulty or not at all, and may become dangerous to life." But, as in my first case, the choice of situation is sometimes excluded; and even old Gottil. Aug. Richter says,⁵ in speaking of ascites: "As the little puncture does not immediately close, the continual trickling forth of the water (or pus) prevents the too rapid reaccumulation of the fluid in the abdominal cavity" (the entrance of air and other unfavourable accidents). "With respect to the operation, we may have the less hesitation, as the swollen navel, if not opened, usually gives way spontaneously; for cases have been observed where it has broken of itself, and the water has, without any evil consequence, been discharged; the operation, moreover, has already actually been successfully performed."⁶ "The fear of umbilical hernia (Garangeot) appears to be unfounded (Sharp), especially when a small opening is made." Although the opening is usually situated by no means at the lowest point of the abscess, the complete discharge of the pus is effected, in opposition to the law of gravity, through the contractions of the diaphragm and of the abdominal muscles.⁷

Respecting the mode of operating, I am convinced that, as in thoracocentesis according to Marotte, so in empyema abdominis, the preference must be unconditionally given to incision with the knife: or, what is equivalent, to the valvular incision and perforation of the parietal peritoneum with the point of the knife (Riecke), instead of puncture with the trocar, and for the following reason:—

It is prudent, in deep abscesses, to divide the layers covering them gradually, and by renewed palpation to make the fluctuation (or pulsation) always more distinct, especially where the walls are fatty or cedematous.

The entrance of air, which when to a slight extent is confessedly not of much consequence, in the operation for empyema abdominis, occurs much less easily than in that for empyema thoracis; and, if we do not operate with the trocar, perhaps never takes place, because the yielding of the soft integuments to the external atmospheric pressure, and the immediate contractions of the diaphragm and abdominal muscles, must render it nearly impossible. In very well-marked cases, the practised and bold operator, like Velpeau, may, in opening the pleural

¹ Compare Moser, *Geschlechtskrankheiten des Weibes*, p. 587; Scanzoni, *Geburtshilfe*, p. 962.

² Compare Piorry's Proposal, *Rev. Med.-Chir.*, October, 1847; Stromeyer's Cases in *Maximen der Kriegsheilkunde*, p. 636; and Laparotomy in *Fecal Extravasations*, Roser, *Anat. Chir.*, p. 224.

³ Bamberger, *loc. cit.*, p. 697.

⁴ Vidal-Bardaleben, *Chirurgie*, Band iii. p. 681.

⁵ *Anfangsgründen der Wundarzneikunst*, Band v. p. 134.

⁶ Sims, *Memoirs of the Medical Society*, vol. iii.

⁷ Compare Stromeyer, *loc. cit.*, p. 191.

cavity, without further preparation thrust the bistoury through the abdominal wall. Even for injection, the advisability of employing which cannot be considered as a settled point, I believe the use of the trocar to be not absolutely necessary, as it appears to me that by employing a filled syringe the entrance of air can be equally well avoided. Opening the abscess, on the contrary, by means of caustics, drawing plaster, setons, or blisters, appears, *à priori*, to be as impracticable as the establishment of a counter-opening.

For the after-treatment, the oil-tent and the application of warmth and moisture are sufficient; in the general management, a strengthening regimen should be adopted.—*Dublin Quarterly Journal*, August, 1861, from *Virchow's Archiv.*, Bd. xx. Heft 5 and 6.

58. *On Certain Grave Evils Attending Tenotomy, and on a New Method of Curing Deformities of the Feet.*—A paper with this title was read by Mr. RICHARD BARWELL before the Royal Medical and Chirurgical Society, November 26, 1861. The author remarked that the purely mechanical treatment of club-foot, which had since 1832 been superseded by tenotomy, could as a rule deal very successfully with those lateral twists of the extremity which are called varus and valgus, but that the equinal deformity could hardly ever be cured by these means. This peculiarity is attributable to the great power of the muscles attached to the tendo-Achillis; for contracted muscles may be lengthened with an ease which is, *ceteris paribus*, in direct ratio with their power. At the present time the treatment of pes equinus is, above all others, simple and satisfactory, because division of the tendo-Achillis gives the means of lengthening this part in a few days. In a similar manner, though in different degrees, the treatment of all other deformities in which extension mingles is assisted by this section. The inward twist of the foot—varus—is now treated by division of four tendons at least (tibialis posticus and anticus, flexor longus digitorum and the tendo-Achillis), and frequently also of the plantar fascia. A very similar treatment is inflicted on valgus. "The peronei tendons are to be divided, or, together with them, those of the extensor longus digitorum and the tendo-Achillis, and also those of the tibialis anticus and extensor proprius pollicis, when they are retracted." Can we be surprised that after this there should be, as admitted by the above-quoted orthopædist, "difficulty in continuing sufficient support to the arch of the foot? and even after the arch has been perfectly restored, support is required during many months." But if the deformity have arisen, not from spasm in the predominant muscles, but from debility of their antagonists, division of the still active tendons produces disastrous consequences. Mr. Barwell was led, four years ago when examining some old cases of tenotomized feet whose actions were clumsy and ill-performed, to doubt the desirability of dividing several other tendons as unhesitatingly as above described; and he thinks himself now in a position to explain the dangers and evils resulting from such practice. In 1842, M. Bouvier reported to the Académie Royale several experiments performed on the tendons about the feet of dogs, and one on a horse. In no one case did these tendons unite so as to be of any subsequent value. Moreover, there are examples on the human subject in a recent work on the "Reparative Process in Human Tendons." Mr. Adams has collected together all the cases he could get at of *post-mortem* examination after tenotomy. Amongst these there are seven in which other tendons besides the Achilles were divided, and in every one of them one or more of the severed tendons is either not united at all, or has become attached to the bone or surrounding parts, so as to be of no possible use hereafter.² The evident and sole conclusion from them is, that such muscles as the tibialis posticus and flexor longus digitorum might as well be struck by sudden and irremediable paralysis as be subjected to the knife of the tenotomist, and that the tibialis anticus is only a little better situated. Probably the peronei are quite as exposed to non or false union as the two first-named muscles, since their situation behind bones is analogous. Thus, to divide these tendons is to produce a lameness, perhaps less apparent, but more incurable,

¹ Brodhurst on Club-foot.

² An analysis of the cases justifying these assertions was appended.

than that for which the operation was originally performed. Mr. Barwell then proceeded to question the necessity of dividing those tendons in order to restore the shape of the foot, quoting Dr. Little's opinion, that indiscriminate section was the rule, even with regard to the tendo-Achillis, and giving his own experience that division of the other tendons was hardly ever necessary. In support of this view he mentioned another curious result of the above-named autopsies—namely, that in one case an attempt had been made to divide the posterior tibial tendon, and the limb came so easily into shape that it was thought to have been divided, but after death was found to have remained whole. With all these facts before us, the author said it was our duty to avoid dividing tendons about the foot, and to return to mechanical treatment. The mechanical shoes of the best form receive the foot, and then act simply by twisting it in a direction contrary to the abnormal bend. In such contrivances no heed is taken of the condition of the muscles nor of their direction, and they are all such as greatly prevent the power of walking. The author makes the following propositions: The balance of the foot is kept up by a set of muscles which antagonize one another. By abnormal predominance of any one set deformity is produced. The predominance may be from excessive contraction of the prevalent muscles, or deficient action of their antagonists. In either case our efforts should be directed to counteract the predominant force by applying a power in the direction of and as much like the deficient muscle or muscles as possible, and, at the same time, the foot must be allowed its use. These indications are thus carried out: A broad and long piece of strapping-plaster, spread on a thick material, is made to adhere over the origin of the muscle and along its course. Upon this is laid a piece of sheet tin, long enough to reach from the upper part of the leg to just above the ankle, and carrying at its upper part a wire loop; the piece of strapping is turned back over it, and lies with its adhesive side outwards. Another piece of strapping is placed on the foot upon the insertion and along the course of the tendon; the end of this strapping reaches to the bend of the ankle, and is folded over (the two sticky sides opposed), and an eyelet let into it. An assistant is now to hold the limb as near as possible in the right position, while it is being smoothly strapped from the toes to the knee, leaving out the end (with its eyelet) of the piece on the foot and the wire loop at the upper part of the leg. Between these two—the one representing the origin, the other the insertion, of the muscle—there is to be stretched an India-rubber spring, at a proper degree of tension. Thus, while there can be considerable force used in the direction of any muscles in the leg, the *point d'appui* is so supported by a loop of strapping, which takes its bearings from both the skin of the leg and the surrounding plaster, that no injurious pressure occurs anywhere. There are also some little contrivances for changing the direction of the force—as for the peronei tendons. Models showing this method and treatment were on the table, and cases of cure by these means were read.

Mr. Holmes Coote said that the Society felt indebted to the author for this paper, although it touched upon a class of cases that had of late years received, it must be owned, a very large share of general attention. Mr. Coote had listened in vain for the grave objections to tenotomy; and as for the treatment of deformities by extension, that was a principle dating from the earliest epochs of medicine. The three cases quoted by the author in support of his principle were, as far as Mr. Coote understood them, 1, a case of paralytic talipes equinus; 2, a case of weak ankle; 3, a case of flat foot. Now it was well known that the treatment of such cases by mere mechanical appliances was very generally all that was required. Tenotomy was the exception. But the division of tendons he affirmed to be almost invariably necessary in cases of congenital deformity, to which the author had not alluded. Experiments, as regards tenotomy performed on animals, were not satisfactory, owing to the impossibility of keeping the limb quiet or the bandages properly applied. It did not occur to him that the evidence offered by Mr. Adams, in his late work referred to by the author, was opposed to tenotomy, but he (Mr. Coote) affirmed that even if some of the smaller tendons did occasionally adhere to the sheath or neighbouring parts (an accident which should not happen), that inconvenience was not to be allowed to weigh against the great advantage of enabling an infant with a club-foot to put

the sole to the ground before the parts had become moulded to their abnormal position.—*Medical Times and Gazette*, December 7, 1861.

59. *Osteo-Plastic Resection of the Upper Jaw*.—This operation consists in separating the upper jaw from its connection with other bones, and again restoring it to its normal position. An operation of a similar kind was first done by Professor Langenbeck, two years ago, when he extirpated a naso-pharyngeal polypus; in that case he excised the nasal bone and the nasal process of the upper jaw, removed the tumour, and afterwards replaced the bones, with complete success. Another case in which the whole half of the upper jaw was first excised and then replaced, occurred in the practice of this distinguished surgeon a few weeks ago.

The seat of naso-pharyngeal polypi is such as to require the resection of one-half of the upper jaw, and this has been done repeatedly, in France especially, by Messrs. Robert and Maisonneuve. In the cases which occurred in Professor Langenbeck's practice, he had always been able to perform extraction either from the mouth or the nostrils, or by division of the soft palate, and resection of the horizontal part of the os palatinum, or the resection of the nasal process of the upper jaw. He was, therefore, averse to the extirpation of the upper jaw, especially as experience has shown that a recurrence of the tumour is not prevented thereby. There are, however, tumours which are attached in the neighbourhood of the Eustachian tube, and the foramen spheno-palatinum, and the sinus sphenoidalis, which cannot be completely removed unless the upper jaw is taken away. Besides, tumours are now and then observed in the fossa pterygo-palatina, which grow partly towards the naso-pharyngeal cavity, partly towards the fossa spheno-maxillaris, so that the upper jaw is quite surrounded by them, and must necessarily be removed before the surgeon can attempt extirpating the tumour. Professor Langenbeck, however, satisfied himself, by a close examination of the skull, that the region just described would become quite accessible by only removing the upper part of the jaw, without taking away the hard and soft palate and the alveolar process. Having been struck by this idea, he conceived that it might be possible to replace the upper jaw after the operation, just as he had succeeded in doing before with the nasal bone and the nasal process of the jaw. It was, of course, necessary to avoid the destruction of the soft coverings of the jaw, the skin of the face, the mucous membrane, and the periosteum of any part of the bone; and it was obvious that, on one point at least, it ought to remain attached to the neighbouring bones, in order to allow a sufficient supply of blood. These conditions he purposed to fulfil, by not separating the soft parts of the face from the bone, but merely cutting them through down to the bone, in the same direction in which the saw would have to work, and by leaving the nasal process of the upper jaw in contact with the nasal bone and the nasal process of the frontal bone.

The following are a few particulars of the case in which this operation was first performed with successful result: The patient, a boy, aged 15, had always been healthy until two years ago, when he perceived a want of air in the left nostril, which soon became perfectly impermeable, the voice being changed at the same time. About seven weeks ago, the left cheek and the eye began to protrude, and the latter, although otherwise healthy, was no longer used for seeing. No tumour was visible from the nostril, nor from the mouth, while in the middle of the left palatine process of the upper jaw the floor of the cavity of the nose appeared to be pressed toward the cavity of the mouth, and this part felt soft and elastic on account of the dislodgment of the palatine bone. Behind the soft palate, a firm, lobular tumour could be felt in the left choana, which was quite filled up by it, the introitus into the left side of the nose being blocked up. This latter space appeared to be considerably enlarged, while the right choana and nostril were narrowed. The osseous septum narium was dislodged towards the right side. The teeth in the left upper jaw were quite healthy and fast. The slight prominence of the left cheek was caused by a tumour between the masseter muscle and the upper jaw. The left zygomatic arch was a little more prominent, and the lower part of the left fossa temporalis fuller, than is commonly the case. Nothing morbid could be discovered in the orbit.

Other surgeons who had seen this patient contended that it was a case of naso-pharyngeal polypus; but Professor Langenbeck argued, against this opinion, that all tumours which are not cancerous—as, for instance, the polypi—grow in that direction in which the least resistance is offered by surrounding parts; and that, therefore, a naso-pharyngeal polypus would grow into the sinus frontalis, sphenoidalis, and maxillaris, and the labyrinth of the ethmoid bone, and might distend the walls of those cavities, but that it could not grow from the naso-pharyngeal cavity into the fossa pterygo-palatina, and round the upper jaw forwards. Others thought that a tumour in Highmore's cavity existed; but to this M. Langenbeck objected that the walls of that cavity were nowhere projecting, but, on the contrary, its external wall was decidedly flattened. He, therefore, before performing the operation, mentioned that the case was one of a fibroid of the fossa pterygo-palatina, which had grown from there through the foramen sphenopalatinum into the naso-pharyngeal cavity, the fossa sphenomaxillaris, and round the upper jaw, between its external wall and the masseter muscle, towards the mucous membrane of the cheek. He also said that the resection of the zygomatic arch, which he had done in a previous case, was sufficient for the extirpation of tumours which grew from the fossa pterygo-palatina into the fossa sphenomaxillaris and temporalis; but that, in this patient, in whom the tumour had penetrated from the fossa pterygo-palatina into the naso-pharyngeal cavity, the resection of the entire left half of the upper jaw was absolutely necessary. In order to avoid mutilation of the face, he intended trying to replace the upper jaw after the removal of the growth.

The operation was done on July 1st, the patient being under the influence of chloroform. Two incisions were then made through the skin, the lower one of these from the place of insertion of the left ala nasi in the cheek, and through this towards the lower edge of the zygomatic arch, and along this bone to the middle of the zygomatic process of the temporal bone. The upper incision proceeded from the nasal process of the frontal bone along the lower edge of the orbit, and beyond the frontal process of the upper jaw to the middle of the zygomatic process of the temporal bone, where it met the lower incision at an obtuse angle. Without separating the skin from the soft parts below it, the operator then penetrated through the lower incision towards the jaw, cut through its periosteum, and separated the masseter muscle from the lower edge of the zygomatic bone. After the fascia buccalis, which was strongly prominent, had been cut through, a lobular, white, shining tumour became visible, which extended, between the external surface of the upper jaw and the coronoid process of the lower jaw, towards the fossa sphenomaxillaris backwards. After the lower jaw had been separated from the upper one by means of a speculum, the tumour could without difficulty be removed from the upper jaw, and the left forefinger, proceeding between the upper jaw and the tumour, could reach the fossa pterygo-palatina. As the upper jaw had been compressed by the tumour, and the fossae sphenomaxillaris and pterygo-palatina were considerably enlarged, a slight pressure was now sufficient to allow the introduction of a fine elevatorium into the pharyngeal cavity. A fine and straight narrow saw was then introduced from without into the pharyngeal cavity, through the fossa pterygo-palatina and the foramen sphenopalatinum; and the operator sawed through the whole upper jaw, from behind forwards, with a horizontal cut, while the left forefinger, which had been introduced into the pharyngeal cavity from the mouth, caught the point of the saw, and prevented its touching the septum narium. The second incision through the skin was then likewise made down to the bone; the operator penetrated into the orbit and cut the soft parts in the angle between the frontal and temporal processes of the zygomatic bone. The second cut of the saw went from below upwards, through the zygomatic process of the temporal bone, and through the orbital process of the upper jaw to the lachrymal bone. The resected jaw was now only connected with the left lachrymal bone and the nasal process of the frontal bone by means of its nasal process, which had not been divided; and in this part the skin had also been left entire, in order to allow nutrition to go on. Neither were the hard palate and the alveolar process of the jaw touched. The jaw was now raised by means of an elevator, introduced below the zygomatic bone. This was done without any difficulty, the jaw moving easily

in the connection with the left nasal bone and the nasal process of the temporal bone, as if it were in a joint, and was raised like the lid of a snuff-box, so that the zygomatic bone was nearly on the median line of the face; and the fossæ spheeno-maxillaris and pterygo-palatina, and the naso-pharyngeal cavity, had thus become easily accessible. The peduncle of the tumour was now seen to be attached in the fossa pterygo-palatina, proceeding from there towards each side; it was as large as a fowl's egg, and one part filled the naso-pharyngeal cavity; the other the fossa spheeno-maxillaris. The antrum Highmori, which had been opened by the horizontal cut of the saw at its inferior point, was empty and quite normal, although somewhat narrowed by the pressure of the tumour from behind and without. The peduncle of the tumour was then separated, by means of a broad elevator, from the fossa pterygo-palatina; the part, which was in the cavity of the pharynx, was then caught with a strong polypus-forceps and drawn out. The foramen spheeno-palatinum and the fossa pterygo-palatina were enlarged to three times their normal size. The tumour was then entirely removed; and nowhere could a perforation of the basis cranii be discovered.

The hemorrhage during the operation was very considerable, on account of the dilatation of the arteries; but at the end it ceased spontaneously. Only the arteria spheeno-palatina was tied at its entrance in the foramen spheeno-palatinum, and the ligature conducted through the left nostril. After the wound had been most carefully cleaned, and the operator had again satisfied himself that nothing was left behind, the jaw was again pressed backwards into its normal position, and the places where it had been sawed brought into contact. The jaw showed a disposition to swing upwards to the nose, so that a slight pressure had to be exercised upon it before the wound was entirely united by means of iron sutures. Some cerate and a thick layer of charpie was then placed upon the wound, and fixed by a bandage. The operation had lasted nearly an hour. Much chloroform had been used, and the little patient had shown some excitement during the intervals of insensibility.

The further course of this case was very satisfactory. There was at first some fever and suppuration; but, in little more than a fortnight, the wound was quite healed. The appearance of the face was then nearly normal. The upper gum had quite regained its usual position, and there was no swelling of the soft parts; only the conjunctiva palpebrarum was a little puffed, but the eye did no longer protrude. There was imperfect palsy of the orbicularis muscle, and the eyelids could not be quite closed. Besides, the infraorbital nerve and the ganglion spheeno-platinum had been destroyed by the operation, so that there is, of course, anæsthesia of the parts animated by them. In all other respects it was a perfect cure; and it appears, therefore, that henceforward it is no longer allowed to remove the upper jaw in cases of this kind. We may well congratulate M. Langenbeck for having successfully completed—not only a novel operation of importance—but one of the nicest and most difficult on record.—*Med. Times and Gazette*, Sept. 7, 1861.

OPHTHALMOLOGY.

60. *Diabetic Cataract*.—Dr. LÉCORCHÉ has recently published a work on this affection which has not yet reached us, but the Paris correspondent of the *Lancet* (see number for October 5, 1861) gives the following interesting summary of it:—

“The diabetic cataract has for several years past been admitted as a pathological fact by both physicians and oculists, and the latter have learnt by experience to know that the methods usually resorted to for the relief of the ordinary forms of cataract have been remarkably unsuccessful in this particular variety. M. Lécorché's work is dedicated more especially to the solution of the surgical difficulty, and furnishes at the same time a contingent of original matter in connection with the symptomatology of this special type of lenticular opacity. Age,

as it would seem, possesses a marked influence on the development of this form of cataract, which appears most commonly between twenty-five and forty. The existence of the ocular complication may be to a certain extent taken as a gauge of the gravity of the diabetic symptoms, as it is only in severe and confirmed cases that cataract is present. The alterations in the anatomical character of the lens seem for the most part to be preceded by frontal and supra-orbital neuralgia, and diminution of visual power, or amblyopia. These changes generally commence about eighteen months or two years after the beginning of the malady, and progress, *pari passu*, with the increase of the sugar in the urine. The advance of the cataract may be either rapid or slow. In certain cases both eyes have been attacked, and the patient has been deprived of sight, within the space of a few days; in others, the disease has been slow, and it has been possible to watch its progress from day to day. According to Dr. Lécorché, in the latter case streaks (strie) have been observed on the posterior aspect of the lens, converging from the periphery to the centre, augmenting in number each day, and gradually overspreading the crystalline surface so as to constitute that form of cataract known as the soft variety. When one eye alone is affected at the outset, it is mostly the right that suffers; the disease spreading, however, inevitably, within a given lapse of time, to the opposite organ. Whereas in cases of hard cataract the direct impression of light is painful to the patient, in this particular variety it is greedily sought. When the cataract is complete (and herein lie the elements of differential diagnosis) the lens is bulky, as it were swelled, and generally of a bluish-white tint. The iris is seen to bulge forwards towards the cornea, in consequence of the encroachment upon the posterior chamber by the disorganized crystalline body. The retina, when examined by the phosphenic test, is in the great majority of cases found to be healthy. With regard to the propriety of operation, the author remarks that where the diabetes is complicated with albuminuria no surgical interference should be attempted; the same rule holding good in the event of tubercular phthisis, marasmus, or other such unfavourable condition co-existing with the cataract. The choice as to the particular mode of operation to be adopted has already been decided by M. de Graefe, who advises either extraction by the linear method, or else a combination of iridectomy and the usual flap operation, the former preceding the latter by an appropriate interval."

61. *Cases of Reflex(?) Amaurosis with Coloured Vision.* By J. H. JACKSON, M. D., Clinical Assistant at the Royal London Ophthalmic Hospital, &c.—The first of the following cases is interesting not only pathologically, but also in relation to a medico-legal question recently raised in a court of law; and it is the more valuable that, not having occurred after any injury, there was no room for suspicion of unfairness in the description of the symptom by the patient—a symptom which, even after the use of the ophthalmoscope, must remain subjective. Before I relate the case, however, I may mention that the medico-legal question was raised in a recent action brought by a corn-dealer against a railway company, to recover damages for defective vision following on injuries received in a railway accident. The defect was stated to be coloured vision (yellow), so that the plaintiff was unable to distinguish yellow and white wheat—both looked yellow. In this case there was, I believe, no subjective symptom, either to the eye, unassisted, or aided by the ophthalmoscope.

A man, aged 39, admitted as an out-patient under Mr. Poland, came under my care on June 1st. for impaired sight, which had commenced gradually three months before. He could not read the largest print, and was led to the hospital. He had no pain, and had had none from the first. He had been temperate, and, except for the defect of sight and a few nervous symptoms, to be presently alluded to, was quite well. His eyes were examined by the ophthalmoscope by several observers, and both the optic disks were found to be anæmic. There was no trace of choroidal or iritic inflammation. The interesting point in this case, however, was, that the patient saw everything as if yellow; it mattered not what colour they might really be—they were all yellow. Again, this pathological condition was rendered interesting by the fact of his business being interfered with from the first, not merely by loss of the power of seeing, but by

the objects being seen coloured. Thus he might have pursued his business, of buying wood, in spite of considerable impairment of vision, if the element of colour did not come into play; *but he was unable to distinguish red-pine from yellow-pine, both looking yellow.*

In this case there was, as the ophthalmoscope showed, disease of the optic nerves, without any evidence of disease of the other structures of the eye, but there were symptoms which led me to believe that changes were also going on at the same time in other parts of the nervous system. These symptoms were only, however, temporary trembling of the legs, without evident cause, lasting for some time, a jerking up of the left leg, and a sensation of "pins and needles" in the toes, trifling as effects, but serious as signs of impaired nutrition of certain parts of the nervous system. I believe that they were signs of impaired nutrition in other parts of the nervous system coetaneous with—and not causing—the loss of sight. I suppose (how produced is another matter), that the anæmic condition of the optic disks, signifies impairment of the blood-supply of the whole retina, and that this patient's loss of the power of seeing and also of receiving a correct impression from light admitted into his eye, was due to some change, more or less permanent, in the retina itself, consequent on impaired nutrition, and yet in many cases of anæmic optic entrance there is no history of coloured vision. In many, however, there is; and red, and sometimes green "fogs" are mentioned. I have notes of a case of one patient who first saw a blue cloud before his eyes, which subsequently became black, or as we may say of all these cases that of the three colours which compose white light, one only is seen, and then later none, *i. e.*, when the "cloud" becomes black. In this case it was clear that there was no other disease of the eye than atrophy of the optic nerve. In fact, when he first came, several observers considered that the fundus was normal; subsequently, however, there was no doubt that the optic disks were in the condition commonly called atrophy.

In both these cases there was another symptom of interest, *viz.*, that the sight varied remarkably. The patient who saw yellow said, that one morning, after having been excited, his "sight totally left him," and that in consequence, for a quarter of an hour, he could not see *at all*. He found, too, that his sight varied in the day. It was better in the morning, worse in the middle of the day, and better again late in the afternoon. In the other case, the patient, for a short time, recovered his sight entirely. He was a very intelligent man, and he described circumstantially what he saw, and what he was doing. This only occurred twice, and only lasted for about half a minute. I have said that I believed the loss of sight was due *directly* to what the ophthalmoscope showed, *viz.*, to local disease in the retina, and this from impairment of its circulation, from contraction of the bloodvessels, the result, as I believe, in all these cases, of some eccentric irritation—the *indirect* cause of the blindness. I admit that in neither of these cases was I able to fix on even a possible cause of irritation; but in other cases, in which the condition of the optic disks was similar, I have had more certain evidence that some eccentric irritation existed. In one case, from this condition of the optic entrance, I considered the diagnosis I had made of disease of the cerebellum was rendered certain, and such proved to be the case. Again, although this feature also is absent in this case, the suddenness of the attack is some evidence, I think, that this affection, like other forms of paralysis, is due to eccentric irritation; and then, again, the sudden alterations in the sight would, I think, show that there could be no organic change *par excellence*, either in the retina or in the cerebral part of the organ of vision. I have found that these alterations take place only in the beginning of the affection. Of course, later, the continued defect of blood-supply produces permanent loss of function. We all admit cases of paralysis of a leg or arm in a child to be very often reflex, occurring *suddenly*, the paralyzed limb being cold, and ultimately wasting, the cause being probably, not a lesion between the nerves of the limb and the central nervous system, but some eccentric irritation acting on its bloodvessels. Then in other cases of reflex paralysis, as reflex paraplegia, sudden alterations of power are often well-marked. I should say then, that in this form of amaurosis there is some eccentric irritation acting on the vessels of the optic nerve and retina producing anæmia, and thus more or less loss of

function. Dr. Brown-Séquard tells me, that he has collected more than sixty cases of amaurosis connected with diseases of the cerebellum, produced, as he believes, by reflex action. The two following quotations from Dr. Spillan's translation of *Andral's Clinique Médicale*, will be interesting in relation to this subject.

"With respect to the fourth case published by Dr. Michelet in his Thesis, it is deserving of all our attention.

"This was the case of a girl, eighteen years of age, who two years before her death had had an attack of apoplexy, the result of which was *amaurosis without any other paralysis*, and habitual headache. An apoplectic cavity of long standing was found in the right lobe of the cerebellum." This could but have caused pressure upon the corpora quadrigemina. Speaking of a case of blindness, associated with hemiplegia consequent on disease of the cerebellum, he writes: "With respect to the blindness, it seems at first that it has nothing to do with disease of the cerebellum, and yet this case is not the only one in which different affections of the cerebellum have been accompanied by a loss of vision. May this fact be explained by the anatomical relation established between the cerebellum and the tubercula quadrigemina by means of the prolongations known by the name of the *processus e cerebello ad testes*."

In reference to the case I have related, I have only to add, that the patient who had the yellow vision is now almost well. He took iodide of potassium for some time, and later tincture of nux vomica in ten minim doses. Whether, however, his recovery is due to it, or to the iodide, or to neither, I do not pretend to say. If the theory of this case is the correct one, strychnia, which causes dilatation of the bloodvessels, should be the remedy for this form of amaurosis. Of course I do not pretend that there is any great novelty in the disease, the theory, or the remedy, although I do not know that this special form of amaurosis and the ophthalmoscopic condition have been *both* before linked to the theory of reflex paralysis. To show how little credit I pretend to claim, I insert the following quotation from one of Dr. Brown-Séquard's lectures in the *Lancet* for July 13, 1861:—

"*Amaurosis*.—This symptom may depend upon a lesion of the tubercula quadrigemina, or, of course, of the retina and any part of the length of the optic nerves; but it may also be the result of two other and distinct kinds of causes. It may be due to the effect of an irritation starting from any sensitive nerve in the body, or from certain parts of the nervous centres. An amaurosis in such cases seems to be the manifest result of a reflex action. I have seen it produced in that way in animals after an injury to the spinal cord. I have collected sixty-two cases of disease of the cerebellum in which it has been most likely produced in the same manner. My friend, Dr. Davaine, in his excellent work on Worms, mentions twelve cases in which amaurosis was due to worms. An irritation of the frontal nerve may bring on a reflex amaurosis, which is quickly cured after the division of the irritated nerve. Neuralgia of the face not rarely causes a reflex amaurosis. I have seen three cases of that kind, and others are on record. It is known that a simple irritation of the nerves of the stomach in gastralgia may produce a reflex amaurosis. This paralysis of the optic nerve, like all other reflex paralyses, is characterized by the following features: 1st, it, of course, only appears after the irritation which is considered as its cause; 2d, it is not accompanied by any evident alteration of the nerve or of the tubercula quadrigemina; 3d, it increases or diminishes in perfect correspondence with an increase or a diminution of its supposed cause; 4th, it is generally quickly cured or ameliorated when the supposed cause is removed."

I may also just suggest that cases of this kind might, if carefully examined, throw some light on the question, whether the eye or the brain perceives colour. I believe that the eye itself completes the act of seeing, not only in reference to form, size, and distance, but also as to colour, and that the brain merely perceives what is sent to it from the eye. My object in introducing the remarks on reflex amaurosis was to show that the disease produced is a local one of the retina, and not of the brain, or at least not of that part of it which has to do with the reception of the *idea* of size, form, colour, &c., from the retina; so

that the coloured vision was a consequence of local disease in the eye. The brain erred, not primarily, but in *receiving* false intelligence from the retina.

As to the subject of reflex amaurosis, by itself, I hope to be able to bring forward better evidence in a future paper; and by the kindness of Dr. Brown-Séquard and Mr. Poland, I shall be able to collect this evidence from several points of view, and thus to be able to separate more clearly this form of amaurosis from another group depending on intracranial disease affecting the course and origin of the optic nerves. I also hope, which is also of great importance, to explain those transient and slighter affections of the sight so common in cases of vertigo, the various kinds of headache, epilepsy, and simple debility. And conversely to throw some light on these diseases themselves by studying the circulation of the retina and iris—the very furthest outpost of the cerebral circulation—and thus to render more complete the natural history of those diseases.

The following extract from a letter from my friend Dr. Haydon, of Bovey Tracey, is of great interest in relation to the subject of coloured vision: I give it in his own words:—

“I was called yesterday to see an old lady with a somewhat strange condition of her visual apparatus; about a fortnight since ‘she suddenly discovered that her right eye was all but dark, and that she could only see things with her left eye, and that all she did see appeared of a blood-red colour.’ I give her own words. There is no cataract, or other appreciable defect in her right eye, nor can any external examination detect disease in the left; she has had no seizure or appreciable disease of the brain, but she is very stout, near seventy years old, heavy and sleepy; some two years since had some functional derangement of liver, followed by general dropsy. Free purging and a little calomel removed this; and there has been no return of it. Living careless, diet poor, no stimulants; the pupils dilate and contract readily and freely. I once before had a case very similar to this as regards the seeing everything of a red colour, but that person (also an old woman) had become so diseased in sight after an attack of apoplexy.”

Dr. Haydon subsequently informed me that this patient recovered her sight. There was no ophthalmoscopic examination, and it is therefore possible that there may have been some other more organic disease than mere impairment of the nutrition of the retina. If, however, it was, which is my opinion, a case of reflex amaurosis, I have now given a case of red, yellow, and blue vision, or, as I have said before, a case in which (white light entering the eye), the retina did not perceive the yellow and the blue rays, another in which it did not perceive the red and the blue, and a third in which it did not perceive the red and the yellow. I might have given others in which, as I think, the change has gone a step further, and in which the patient, to use for convenience a contradictory expression, saw blackness, or rather did not see at all. In the congenital colour blindness there is an inability to see the colour of an object, and generally the red, the most refrangible, is the one which is not seen. As I say, in the above cases, the colours were various, but I can conceive that it is possible, that in the progress to blindness, there is, although unobserved by the patient, one order of progress, but in what order, and whether beginning from one end of the spectrum or not, I do not pretend to know.—*The Royal London Hospital Ophthalmic Reports*, Oct. 1861.

MIDWIFERY.

62. *Early Maternity*.—Dr. J. G. WILSON, of Glasgow, records (*Edinb. Med. Journ.*, Oct. 1861) an instance of this. A girl at the age of thirteen years and six months gave birth to a full-grown female child. Conception must have taken place when the girl was twelve years and nine months old.

Mr. Robertson records (Midwifery) a case where a factory girl became preg-

nant in the eleventh year of her age. Other cases of early maternity are recorded, but they are not common.

63. *Sneezing during Pregnancy.*—Dr. PETER YOUNG mentioned to the Edinburgh Obstetrical Society a case which occurred, two years ago, in the practice of Dr. Eadie, of Glasgow, where the patient had been the subject of constant sneezing during pregnancy. The application of a mustard poultice to the back had had the effect of allaying this distressing symptom, but not until the uterus had become so affected (probably) by the straining efforts, that a miscarriage was induced. He (Dr. P. Young) had seen Dr. Eadie a few days ago, and had been informed by that gentleman that the same patient was again pregnant, and had again become affected by the same constant sneezing after she had arrived at between the third and fourth month. Dr. Eadie thought the sneezing was caused by the changes produced in the uterus during pregnancy; but he (Dr. Young) believed that it was more probably due to the irritation from the fetal movements, from the circumstance that the sneezing had begun about the period when the fetal movements are usually perceived for the first time.—*Edinburgh Medical Journal*, Nov. 1861.

64. *Induction of Premature Labour; New Indication for it; Modes of Production.*—Prof. SIMPSON, at a recent meeting of the Obstetrical Society of Edinburgh, said that he had brought on labour prematurely, about four years ago, in a case where he believed that he had met with a new indication for the performance of the operation. Mrs. L., the patient who was the subject of the operation, had fallen in labour of her first child in 1851. Her labour had lasted two days, and was terminated by the head of the child, which was in a hydrocephalic condition, being perforated by Dr. Jamieson, of Peterhead. Her second labour, in 1853, was also terminated by means of the same operation, by Dr. Johnston, of Stirling, because of the same morbid condition of the foetal head. In 1856 he (Dr. S.) first saw the patient, in consultation with Dr. Johnson, at a time when she had arrived at the eighth month of her third pregnancy. There was every probability that in this instance again the child would become hydrocephalic, and be destroyed at birth; and the probability was increased by the circumstance that the only sister of the lady in question had given birth to but one child, which had likewise been hydrocephalic, and had been delivered by means of craniotomy. The likelihood of the recurrence of the disease in the third foetus was still further impressed on his (Dr. Simpson's) mind, by a letter which he received about that time from Dr. Embleton, of Embleton, in which that gentleman related how he had just delivered a woman of a child that presented by the breech, and was very difficult of extraction, because of the head being distended to twice the natural size from hydrocephalus. And Dr. Embleton had stated, further, that the first and third children of the same patient had been born hydrocephalic, and had been delivered by means of the forceps. Regarding it, therefore, as in the highest degree probable, in the case of Mrs. L., that if her third pregnancy were allowed to run its full course, her third child would become the subject of intra-uterine hydrocephalus like its predecessors, he (Dr. S.) had two reasons to lead him to induce premature labour at once; viz., 1st, it was a matter of great importance for the lady to have a *living* child, and there was little prospect of her hopes being fulfilled if her progeny were all born hydrocephalic; and, 2dly, it was fairly to be expected, that if the child could be brought into the world at once, and the conditions of its existence changed, it would have a better chance of escaping the dangers of the disease which had proved fatal to the first two children. The result justified his (Dr. S.'s) expectations. Labour was induced, and a living child was born, which he had seen a few weeks ago in the enjoyment of the most perfect health. The method by which labour was induced in that instance, was one which he (Dr. S.) hoped would never again be employed. At that time, the means most commonly adopted for the purpose was the injection of tepid water into the maternal passages; and the manner in which this process acted in bringing on labour was then a frequent subject of discussion. He had become convinced that its *modus operandi* depended on the separation, which it effected, of the membranes from

the interior of the uterus, and which he had come to regard as the exciting cause of parturition at the ordinary termination of a normal pregnancy. As the injection of water was attended with this drawback, that the bed and body-clothes of the patient became disagreeably moistened by the fluid that escaped, he determined to try whether the separation of the membranes might not be as effectually separated by some less discomfoting means: and, accordingly, he attempted to effect his purpose by the injection of atmospheric air, in the case of a patient whom he had seen before in consultation with Dr. Smith, of Lasswade, and in whom he had induced premature labour on a former occasion. He introduced the air by means of a catheter passed into the interior of the uterus, between its walls and its contained membranes, on two successive days; and labour supervened within a few hours after the second inflation. In the case of Mrs. L., however, he had used neither water nor atmospheric air, but carbonic acid gas, which had just at that time been proposed as an oxytotic by Scanzoni. The gas was introduced for the first time by means of a catheter on a Wednesday, and its injection was repeated once each day till the following Sunday. Labour-pains supervened on the Saturday, and continued feeble and intermitting till the Monday evening. The os uteri was firm and cartilaginous, and a number of small incisions were made into it, to favour the dilatation. The child was not born till Tuesday morning, or for six days after the first injection of the gas. The case, however, was so far successful. But he (Dr. S.) believed that a similar operation *ought never again to be attempted*. For, having happened soon afterwards to speak of these cases to some of his confreres in another medical school, one of them, who was induced to adopt the operation, had the misfortune to lose his patient. The gentleman in whose hands the accident happened was a distinguished and experienced practitioner, and performed the operation with every care and precaution; yet the patient died in the course of a few minutes. The fatal effect was probably due to the separation of a portion of the placenta, and the entrance of air through the uterine sinuses into the circulation. The case was not solitary, however; for Scanzoni had recorded two fatal cases of the injection of carbonic acid gas into the uterus; and in a case in which the artificial and criminal induction of abortion, at Philadelphia, was attempted by blowing in air into the uterus, the patient suddenly expired. He (Dr. S.) therefore maintained that the injection of air or gas of any kind into the interior of the uterus, for the purpose of inducing premature labour, was an operation which we were not entitled to repeat. He (Dr. S.) had many times had recourse to the injection of tepid water for the induction of labour—sometimes by means of Kiwisch's douche, which was a clumsy and inconvenient contrivance; more frequently by means simply of Higginson's syringe, the nozzle of which could be introduced within the os uteri. But, besides being attended with discomfort from the wetting of the bed, this operative procedure was open to the further objection, that it sometimes brought about a change in the presentation of the child. Moreover, he (Dr. S.) had been greatly alarmed by seeing a patient on one occasion faint under its use, probably from some of the fluid getting into the circulation. And in consultation practice he had seen two more alarming cases still, where both the patients died. In both, only a few ounces of water were injected; and yet rupture of the uterus took place. The occurrence of the rupture was to be explained, as he (Dr. S.) believed, by the fact, that the uterus being already fully distended, could not admit the few ounces of fluid necessary for effecting the separation of the membranes from its interior without being stretched and fissured to some extent; and during labour these slight fissures might easily be converted into dangerous and fatal ruptures. In one of the cases he referred to, the patient died before labour was completed; the other, in twelve hours after its termination. They both occurred in the hands of most accomplished and able accoucheurs; and he (Dr. S.) thought the procedure ought to be entirely set aside, or should be had recourse to only in some exceptional circumstances. Fortunately, we had other and safer means of effecting our object; and of these, perhaps, the best was that now in very common use in Germany, viz., the introduction of a flexible male catheter into the interior of the uterus between the membranes and the uterine walls, withdrawing the stilet and leaving the catheter there until labour set in.

The history of that operative procedure was, shortly, this: Dr. Hamilton used to bring on premature labour by separating the membranes from the interior of the cervix, to a distance of two or three inches, with his finger or a catheter. The plan was not very effectual, and required always to be repeated very frequently before labour supervened. About eight years ago, he (Dr. S.) had supposed that it might be produced more effectually by leaving a foreign body in the cavity; and chose as the subject of experiment a patient on whom labour had on two previous occasions been successfully induced by means of the water douche, and who had had several disappointments from habitual death of the fetus in the two last months of utero-gestation. On the occasion referred to, the membranes were separated to a distance of two and a half inches from the interior of the cervix by means of an intra-uterine pessary, which was left permanently in the cavity, in the expectation that labour would speedily supervene. It was moved about from time to time, but no signs of approaching labour appeared. The fetal heart continued to beat vigorously; and as it seemed quite probable that it might be carried to the full time with perfect safety, no supplementary measures were taken to insure the premature occurrence of parturition. The pessary was thus worn for thirty-one days in the cervix, and was frequently moved all round its interior, without the slightest effect; for labour only supervened at length on the completion of the full term of pregnancy. Believing that labour could be more certainly induced by the separation of the membranes from the interior of the *body* of the uterus, he (Dr. S.) had afterwards attempted to do this by passing the uterine sound to some distance into the interior of the uterus, and moving it slightly from side to side, taking care to avoid the site of the placenta. The success attendant on this form of operation was so great, that for some years past he (Dr. S.) had used the sound almost exclusively for inducing premature labour. It had one disadvantage, however, inasmuch as in some cases it was found necessary to introduce it several times before labour was finally brought on; and in one case that had occurred in his practice some months ago, six days elapsed from the time of the first introduction of the sound ere labour finally supervened. The retention of the flexible portion of the male catheter in utero overcame this difficulty. If placed between the uterus and membranes, labour seemed almost invariably to supervene within twelve hours. If its extremity chanced to perforate the membranes during its introduction, labour did not supervene in some instances for twenty or thirty hours longer. In Germany they were in the habit of introducing a gum-elastic male catheter into the uterus, and leaving it there with the stilet till labour supervened. Fearing lest the uterus might be injured by the presence of a firm foreign body, he (Dr. S.) had withdrawn the stilet, and left only the flexible catheter, which remained until labour supervened. Statistics of fifty cases that had been operated on by this means in Germany had been collected by Dr. Amann, who showed that, in all, labour had been induced within twelve hours. He (Dr. S.) believed, therefore, that it would be found to be an improvement in the operation to leave a foreign body in the cavity of the uterus; but perhaps an India-rubber tube or some soft body would be found to be as safe an instrument, and quite as successful a one, as the elastic catheter. Dr. Simpson added, that in some special cases other modes of treatment might require to be adopted, and stated, in particular, that where it was desirable to have the os uteri dilated to some extent before labour came on, the sponge-tent might be employed with advantage.—*Edinb. Med. Journ.*, Sept. 1861.

65. *Anæsthesia in Midwifery*.—Dr. ANTONIO GUELMI, late assistant in the Obstetrical Clinic of Pavia, makes some practical remarks on the use of chloroform and ether in midwifery. He commences with the rapid *resumé* of the history of anæsthesia, and particularly dwells on the development of its application to obstetric cases, detailing the principal arguments, *pro* and *con*, which have been brought forward, especially in England, and declaring himself in favour of the use of anæsthetics in labour. He refutes, in succession, the well-known arguments—1. That, when operative interference is required during labour, the sensations of the conscious woman are our best guide in the application of instruments, &c. 2. That the fetus is likely to receive serious damage from the

diffusion of the chloroform through its circulation. 3. That chloroform is liable to cause paralysis, convulsions, &c., in the parturient woman (here the author quotes Dr. Murphy's experience of the *curative* agency of chloroform in puerperal convulsions). 4. That the regular contractions of the uterus are necessarily suspended by anæsthetics. Following the description of Flourens, he shows that, according to the greater or less amount of the dose of the anæsthetic, very different effects may be produced. With small doses, you may get just sufficient anæsthesia to mitigate the pain of ordinary labour; with a larger quantity, you may enable the patient to undergo a surgical interference without any suffering; with a still larger quantity, you may procure a complete relaxation of the muscles of the uterus. Thus, there are evidently three degrees of anæsthesia which may be induced in labour, according to the exigencies of the particular case.

It is with regard to the use of chloroform for the purpose of relaxing uterine spasm, in the case of abnormal presentations, that Dr. Guelmi speaks most enthusiastically. He mentions a good case of his own bearing on this point, in which, by means of one short inhalation of chloroform, he was enabled so far to relax a rigidly contracted uterus, as to introduce his hand, and effect version with facility, and he quotes a case by Adrien Millet to the same effect.—*London Med. Rev.*, Sept. 1861, from *Annali Universali di Medicina*.

66. *Inversion of the Womb of Long Standing Reduced by Permanent Pressure*.—The following particulars are extracted by the *Gazette des Hôpitaux* from the pages of the *Deutsche Klinik*:—

A primiparous woman, aged twenty, was delivered with the forceps, in December, 1852, after twenty-four hours' ineffectual labour, and the after-birth was immediately extracted, several coils of the funis being twisted round the neck of the child. The patient became unconscious, although the hemorrhage does not appear to have been unusually considerable. For a long time after her confinement, the young woman continued an invalid, and suffered from paralysis of the bladder and swelling of one of the lower extremities; for six years she was subject to daily hemorrhage from the womb, in addition to menstruation, which regularly recurred every six weeks. Various methods of treatment were unavailingly resorted to, and in August, 1857, she was introduced to Mr. BROCKENDAHLE, who, to his great surprise, ascertained the existence of an inversion in the womb of the second degree. The uterus formed in the vagina an elastic pear-shaped tumour about two and a half inches in length, and pressure with the finger induced no other effect but an increase of the sanguineous discharge. A thin circular fold of the vagina closely embraced the womb, and might on superficial examination have been mistaken for the cervix. The speculum was inserted, and allowed of the inspection of the dark red mucous lining of the viscus from which blood was seen to exude. The vagina and all the other mucous membranes of the patient were pale, and testified to her state of confirmed anemia.

The displacement, in all probability, had taken place gradually; and as no sign of peritonitis had ever been present, Mr. Brockendahl determined, although the inversion was complete and the viscus thick and unyielding, to make an effort at reduction. After reiterated warm baths, he attempted to insert the entire hand into the vagina, but without success, the external aperture of the duct being much contracted by a scar consequent upon laceration of the perineum. The treatment was then discontinued, and the patient was lost sight of until October, 1858, when the surgeon, dreading the use of rigid instruments, each day endeavoured to soften the womb by kneading it with the hand, in hopes that its texture, thus rendered more yielding, might admit of the fundus being re-inverted. Mr. Brockendahl was, however, compelled by the reappearance of the menses to discontinue these manipulations, and he again lost sight of his patient for some weeks.

In November, having read an account of Dr. Tyler Smith's case, he resolved to try the effects of continuous pressure; one of Braun's India-rubber pessaries was accordingly inserted into the vagina on 27th November. This appliance was removed daily, for the purpose of judging of its action, replaced after being

filled with water, and further distended to the utmost by insufflation. The instrument gave rise to no symptom beyond a little uneasiness, which lasted a couple of hours after its reintroduction. On the 2d of December, as some pain in the abdomen was complained of, the pessary was extracted, and the organs were examined. Mr. Brockendahl was much astonished to find that the inversion had disappeared, the cervix admitted of the insertion of three fingers, and its labia were well defined. The womb was measured and was found to exceed, by more than half an inch, its usual dimensions. The cold douche soon restored the viscus to its natural size, and the hemorrhage, which had lasted so long, ceased, and has not since returned.—*Glasgow Medical Journal*, July, 1861.

67. *Puerperal Fever*.—Dr. W. T. Fox read an interesting paper on this disease before the Obstetrical Society of London, November 6, 1861.

This paper was intended as an abstract of the history of puerperal fever as it occurred at the General Lying-in Hospital from 1833 to 1858, both inclusive. It appeared from statistical evidence that 180 deaths occurred out of 5,833 labours, giving the very high death-rate of 3.085 per cent. The author then proceeded to show that from the want of a clear understanding of the nature of puerperal fever, much had been mixed up under the head of the latter which was foreign to the subject; that disease in the puerperic took on an abdominal aspect, and so offered deception; that the history of the childbed fever appeared to be a compound of acute specific diseases—local inflammatory conditions—diseases characterized by severe pain and excess of normal reaction; that after eliminating these, the major part of the cases forming true puerperal fever remained, which were explicable, according to the clinical history of the General Lying-in Hospital, by erysipelas; that in tracing the connection between erysipelas and puerperal fever, the different epidemics formed links in the chain of gradation and identity; that all the symptoms of intense puerperal fever were produced in cases in which the most decided evidence of erysipelas alone existed, and therefore the assumption of a special peculiar disease *sui generis* (puerperal fever) was unnecessary; that in the case of primiparae, lacerations to an appreciable extent being the rule, great facility of ingress and onset, so far as the poison of erysipelas is concerned, is their chief source of liability to attack, which latter appears statistically to be true; that with reference to puerperal pyæmia, it merely forms a feature alike common to all acute specific diseases (most especially, however, of erysipelas), being unaccountable for by the doctrine of phlebitis, of thrombosis, of a pyohæmia, and consisting of a general process of abscess, called into action as a special eliminant, when the ordinary agencies fail to expel a virus, and carried on by a relative process between the tissues (connective) and the blood-current, in which thrombosis is common; and lastly, that much of the mortality is preventable. The propositions were supported by cases.

Dr. TYLER SMITH said the subject of puerperal fever was the most important which could occupy the attention of the Society. The whole obstetric mortality of England and Wales exceeded 3,000 annually. Of this number of deaths more than 1,000 women, or nearly three daily, fell victims to puerperal fever; and it was the healthy and vigorous primipara whom it was most prone to attack. The obstetrice could put before him no nobler object than the diminution of this mortality. Unhappily, we could not look to treatment to accomplish this. Under various circumstances, and in different countries, every variety of treatment had been tried and been found wanting. If not curable, it was however preventable. It was not, therefore, to treatment, but to prevention, that we must look for the means of dealing with it successfully. If epidemics of puerperal fever were less rife now than in former times—and at present they rarely occurred, except from the crowding of women in lying-in hospitals—it was because we lived under better sanitary conditions, and paid more especial attention to preventive measures. We should surround every lying-in woman, as far as possible, with antiseptic precautions. Nothing, he believed, would tend more to diminish the frequency of puerperal fever than the full recognition of its infectious and contagious nature, in whatever way it first occurred. It would not so often happen if all accoucheurs recognized the fact that erysipelas, typhus, scarlatina, small-pox, hospital gangrene, putrid sore-throat, diphtheria, the *post-mortem* and other

poisons were excessively prone, if brought near the lying-in woman, to originate puerperal disease. He did not question but that any of the agents which produced zymotic maladies might cause puerperal fever, or that it might arise in individual cases from the retention and putrefaction of portions of placenta or membrane or coagula, or the decomposition of fibrinous clots in the uterine vessels, especially in women who were predisposed by hemorrhage, albuminuria, or other causes of debility; but contagion and infection, which might to a great extent be recognized and avoided, were its chief and most preventable sources. If all our means, in the way of prevention, were habitually brought into operation, he did not doubt that puerperal fever, instead of being the highest, might become a very moderate cause of obstetric mortality.—*Medical Times and Gazette*, November 23, 1861.

68. *The Pathogeny of Retro-uterine Hæmatocele*.—Prof. BRAUN, of Vienna, has reported ten cases of retro-uterine hæmatocele; and the following are some of the conclusions at which he has arrived: 1. In the ten cases, the diagnosis was made with certainty in eight, and with probability in two. Nine of the patients recovered perfectly; in the fatal case, there were extra-uterine pregnancy and obsolete peritonitis. In seven cases, the indications afforded by exploratory puncture were very encouraging. Puncture and entire evacuation of the tumour was followed by cure in six cases; in three, recovery took place under passive treatment. In six cases, the hæmatocele was retro-uterine; in four, antero-uterine. In none of the cases did the extravasation surround the uterus; it was always confined to one-half of the pelvis. 2. Rapid cure may follow the emptying of the hæmatocele by puncture; the fertility of the patient is not destroyed; and a subsequent pregnancy and parturition may follow their normal course. 3. Movable pelvic tumours, which careful palpation and examination show to be probably hæmatoceles, are recovered from under or after inunction of iodine and glycerine. 4. The quantity of blood contained in a uterine hæmatocele may vary from a few drachms to several pounds. 5. The blood extravasated in the neighbourhood of the uterus undergoes a metamorphosis; the corpuscles become broken up, and their membranes appear flabby and eroded; they do not undergo putrefaction, and immediately after evacuation do not emit a putrid smell. When the hæmatocele is of long standing, dark brown spots are formed on its walls; the blood-corpuscles are absorbed, and a greenish yellow fluid is left, having the specific gravity of the blood-serum, with an alkaline reaction, and containing albumen, a very large amount of albuminate of soda, a little biliverdin, no ammonia, very little sugar, but the salts of the blood-serum, with a preponderance of the chlorides. The fluid removed by the trocar from the hæmatocele generally contains blood of a tarry, ropy consistence, not of bad odour, with numerous patches of pigment, and with hæmatin; it also contains crystals of ammonio-phosphate of magnesia. 6. During the existence of a hæmatocele, menstruation sometimes runs a normal course, without pain; sometimes it is very profuse and painful, and is generally attended by enlargement of the blood-cyst; sometimes hæmatocele exists coincidentally with menorrhagia of several months' duration. Intense anæmia is generally only observed where the hæmatocele is complicated with menorrhagia; without this, its presence is compatible with the retention of a healthy colour of the face. 7. The growth of a hæmatocele is sometimes slow, sometimes very rapid. It may in a few days attain the size of a man's head; and in this case the symptoms are generally those of an internal hemorrhage. 8. Some days after the emptying of a hæmatocele, the exudation acquires a penetrating odour, which may be removed by careful injection of the cyst with warm water. 9. Menorrhagia occurring in conjunction with a hæmatocele soon ceases, as soon as the hæmatocele is perfectly emptied. 10. Prolapsus of the vagina may be produced by hæmatocele, with or without the presence of pregnancy. 11. In the highest grade of antero-uterine hæmatocele, the tumour reaches downwards lower than the orifice of the urethra, and upwards as far as the umbilicus. 12. The bladder and uterus are generally pushed upwards by the tumour, more frequently forwards, rarely backwards and to the side. The direction of the displacement may be ascertained by careful catheterization. A hæmatocele projecting into

the vagina is not reduced in size when the bladder is emptied by the catheter. 13. Hematocoele may be induced by extra-uterine pregnancy, when apoplexy of the ovum and extravasation of blood takes place. 14. Secretion of milk appears not to accompany hematocoele, unless pregnancy be also present. If there be lacteal secretion in a case of hematocoele, when the uterus is evidently empty, there is probably an extra-uterine pregnancy. 15. Extra-uterine blood-tumours occurring during pregnancy may fill nearly the whole pelvis, and, lying behind the urethra, may produce the same troubles as vaginal cystocoele, or hernia of an ovarian cyst into the vagina. 16. Exploratory puncture forms the only absolutely sure means of diagnosis between ovarian tumours and uterine hematocoele.—*Brit. Med. Journ.*, Oct. 12, from *Wiener Med. Wochenschr.*, Aug. 31, 1861.

69. *Coccyodynia*.—M. GOSSELIN has recently had under his care, at the Hôpital Beaujon, a case of coccyodynia, the disease made celebrated by the recent admirable researches of Dr. Simpson, of Edinburgh. The patient was a young woman, who, shortly after her first confinement, began to experience severe pains on going to stool, and soon even sitting, unless she adopted a sideway position. Pressure over the coccygeal region much aggravated these pains. M. Gosselin considered that the seat of the pain was in the sacro-coccygeal joint, and that the original cause of it was the strain to which that articulation had been subjected during labour. A number of topical sedative applications were tried, including the use of a subcutaneous injection of sulphate of atropia, without the slightest relief. Subcutaneous section of the muscles attached to the coccyx, after the plan of Simpson, was then tried, but with equally futile results. Hesitating to adopt the extreme measure of *removal* of the coccyx, M. Gosselin again had recourse to palliative measures, and now suggested the simple use of an India-rubber air cushion; and after the patient had steadily continued this plan for twelve days, she had so far lost her pains as to be discharged from the hospital in a fair way of convalescence, since nature herself, the stress on the parts being taken off, would, doubtless, complete the cure, under the favouring auspices of *rest*. It may be mentioned that it was found necessary to regulate the bowels by a rhubarb aperient, so as to prevent *hard motion* from passing over the tender part. The editor of the *Gazette des Hôpitaux* quotes a similar case, cured in a similar way, which fell under his own notice some years ago.—*London Medical Review*, November, 1861.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

70. *Antagonism of Aconite and Strychnia*.—Dr. WOAKES relates (*British Medical Journal*, October 26, 1861) a series of experiments made on dogs to ascertain the applicability of aconite for the relief of poisoning by strychnia. The following is a brief outline of these experiments, with the conclusions to which they have led him:—

Expt. I. A small, weakly terrier had one-fifth of a grain of strychnia in solution injected into the throat. In ten minutes the hind legs began to stiffen; and, after a few convulsive movements, the whole body became so rigid that he could be held out horizontally by one leg. When the animal was thus fully under the influence of strychnia, eight minims of tincture of aconite in water were similarly injected. In about two minutes, the spasm relaxed; the muscles, from being hard as wood, became soft; and the heart, which had been beating too fast to count, gradually calmed down; and, when just about to congratulate myself on the happy effects of my antidote, I found the beast was dead. Death did not result from the strychnia, however, but from the aconite, which I had given in a powerfully poisonous dose for so small an animal; the relaxed condition of the muscles, the effect of the aconite, being very characteristic, and totally opposed to the rigidity following death by strychnia.

Expt. II. Instructed by the preceding experiment, I proceeded more cautiously with the next. The subject of it was a large mastiff, not very docile under treatment. Less than one-sixth of a grain of strychnia produced rigidity. When this was fully established, six minims of tincture of aconite were given in divided doses. During its exhibition, the spasms gradually subsided; and in about forty minutes left the animal entirely, without any ill effect.

Expt. III. Having satisfied myself of the ameliorating effect of aconite on the spasms caused by strychnia, the next object was to ascertain, if possible, how much aconite would so far antagonize a given amount of strychnia that symptoms of neither drug would occur. The subject of the experiment performed with this object in view was a small cur. To it one-tenth of a grain of strychnia, with two minims and a half of tincture of aconite, were given. There being no effect at the end of half an hour, a further dose of one-fifth of a grain of strychnia, with three minims of tincture of aconite, was given. After another half hour, there being no effect, one-fifth of a grain of strychnia, with three minims of tincture of aconite, were given. Slight stiffness supervened; but no spasm. The animal had now taken half a grain of strychnia, a poisonous dose for a small dog; and in about ten minutes after the last dose, an extremely severe spasm ensued. Five minims of tincture of aconite, administered immediately, were followed by sudden restoration. In a few minutes a succession of severe spasms ensued, in each of which three minims of tincture of aconite were given with slight temporary benefit. A still severer spasm followed, and was quickly subdued by five minims of the aconite. This had soon to be repeated, and with like success. It was now necessary to give brandy, each allowance of which contained from three to five minims of tincture of aconite. They were squirted down the throat. The dog remained in this state for two hours, when sleep occurred. After this, the attempt to swallow some milk induced another attack, which speedily subsided of itself, and was the last. In a few hours, this canine patient was as well as usual.

The conclusions to which my observations upon the antagonism of the two drugs now under consideration have led me, are briefly as follow:—

1. In cases of poisoning by strychnia, it is the violence of the spasms which is the chief source of danger, the patient usually dying from the immediate effect of these, rather than from the exhaustion consequent upon the attack. It is the peculiar action of aconite to diminish the intensity, as well as to shorten the duration, of these spasmodic contractions.

2. The influence of aconite in this respect is very transitory, requiring the dose to be cautiously repeated, according to the urgency of the symptoms.

3. Nevertheless, we are not to regard strychnia and aconite in the light of bane and antidote, as the only antagonism between them is a physiological, and not a chemical one; the contractile power of the muscles being strongly excited by the one, and powerfully relaxed by the other.

4. From this fact alone, it is probably impossible so to adjust the dose of each drug that both may be administered simultaneously, and the balance of the system remain undisturbed.

5. While the antagonism above alluded to is taking place, if the system be properly supported by stimulants, etc., strychnia will be gradually eliminated from it, and so the cure completed.

It should be stated that my attention was first called to the use of aconite in traumatic tetanus by reading the details of a case successfully treated by this remedy recorded in the *British Medical Journal* for January 28, 1860, by Dr. Sedgwick.

It remains to test the accuracy of these conclusions by observations in the human subject.

71. *Experiments on Slow or Chronic Poisoning.*—Dr. GEORGE HARLEY read (November 12, 1861) an interesting paper on this subject before the Royal Medical and Chirurgical Society. He began his elaborate paper by referring to the great importance of the subject of slow or chronic poisoning to the medical profession as a whole, and to toxicologists as a class. The symptoms produced by the slow introduction of poison into the system so closely resemble those that

are every day met with in natural disease, that unless one's suspicions are accidentally aroused the effects of the one cannot fail to be confounded with those of the other. Many of the anomalous cases which every now and then occur, and embarrass the practitioner, may be cases of chronic poisoning, if not even of secret murder. It seems a hard accusation to make against civilized society, but Dr. Harley nevertheless believes it to be just, that the cases of poisoning which are discovered form but a small percentage of those that actually occur. Modern physiology and chemistry have rendered it possible not only to distinguish between the effects of acute poisoning and disease during life, but also to separate and identify in many cases the toxic substance after death. Slow or chronic poisoning has, however, received little or no attention, and may therefore be said to be yet in its infancy. With the view of obtaining some information on this subject, the author has, during the last two years, carried on a series of experiments on animals with small doses of poisoning, slowly administered. Although he has already investigated the effects of several of the mineral poisons, his remarks were on this occasion limited to the subject of arsenical poison. The author briefly related several of the experiments he had performed, some of which lasted but twenty-five minutes, while others had extended over a period of eighty days. In the first case, one grain of common arsenic was injected into the jugular vein of a cat. In three minutes convulsions commenced, and in the short space of twenty-five minutes the animal was dead. In the case referred to where the animal lived eighty days, the dose was gradually increased from a quarter of a grain to one grain. In all, forty-nine grains of the poison were taken; and at death the animal presented in a marked degree the effects of chronic poisoning. (The paper was illustrated with numerous water-colour drawings of the different *post-mortem* appearances observed in the various cases.) It appears from these researches that the effects of arsenic on the digestive canal differ in the acute and chronic form of poisoning. So different, indeed, are the morbid changes presented in the two cases, that the effects of the one could never be adduced from those of the other. The more chronic the action of the poison, the more uniformly are its effects distributed over the digestive canal; whereas, in the acute form of poisoning, the effects of the toxic agent are more especially observed in the stomach. The author also related some researches he had made regarding the direct action of the poison on the blood, and from which he had ascertained that arsenic has the power of retarding the metamorphosis of the constituents of that fluid, and thereby affecting the tissue-change. The conclusions drawn from the author's researches are—1st. That arsenic has a specific action on the digestive canal. 2d. That the action of arsenic on the digestive canal is manifested irrespectively of its mode of administration. 3d. That the direct contact-action of arsenic with the mucous membrane is slight in comparison to the influence it exerts through the blood. 4th. That the symptoms manifested during life, as well as the morbid changes found after death, differ very materially in the acute and chronic forms of poisoning. 5th. That whereas in the acute form of poisoning the morbid changes are most marked at the cardiac end of the stomach, in the chronic form they are most visible towards the pyloric extremity. 6th. The more gradual the poisoning, the more manifest is the action of the poison on the intestines, and the less visible are its effects on the stomach. 7th. Death may occur from arsenic so rapidly that no apparent structural change has time to occur. 8th. That the immunity from symptoms of poisoning enjoyed by arsenic eaters most probably arises from their taking the substance in a solid form, and consequently that but a very small portion of what is swallowed enters the circulation. 9th. That the beneficial effects of small doses of arsenic are due to the power it possesses of diminishing tissue-change by its peculiar action on the blood. 10th. That the prejudicial effects of arsenic, when taken in excess, are due to its destroying the property possessed by the constituents of the blood of combining with oxygen, and thereby becoming fitted for the purposes of nutrition.—*Medical Times and Gazette*, November 23, 1861.

72. *Poisoning of Watchmakers by Copper*.—Dr. PERRON, of Besançon, has made some researches on the above subject, which are of interest. For several

years the manufacture of watches in Besançon has greatly increased; there are now about 300 watch manufacturers, who employ about 3,000 workmen. These workmen continually handle gold and copper, and statistical observation has proved that mortality by consumption is exceedingly great in this class. Out of 200 deaths in watchmakers, no less than 127 are caused by tuberculosis, and of the deaths by consumption in the whole population of Besançon, the watchmakers furnish 40 per cent., while the proportion of the number of watchmakers to that of the other population is not 5 per cent. Dr. Perron believes the following to be the causes of this great mortality: The sitting posture which the men are obliged to retain for so many hours in the day, and the necessity of remaining in a cold room without exercise; the irritation of the lungs by the metal dust; and the paroxysms of fever, caused by the absorption of copper. The latter is thought to be the most important cause, by Dr. Perron, and he gives the following description of the symptoms of chronic poisoning by copper, as they occur among these men: The pulse is frequent, the skin hot, the throat dry; most of them complain of pain in the epigastrium, in the region of the kidneys, and in the head; many suffer from indigestion, enteritis, diarrhœa; and others have a feeling of constriction, and an acute pain in the throat. The teeth are in nearly all such cases coloured more or less green, and almost bronzed. These symptoms are especially striking in the apprentices, who are almost exclusively occupied in filing copper. Many get accustomed to the injuries of their avocation, but others become so ill a few weeks after having first entered the shops, that they can no longer continue to work, and are compelled to embrace another calling.

In many cases the symptoms take a very severe form; acute colics, fever, burning thirst, vomiting, diarrhœa, or obstinate costiveness which lasts from twenty-four to thirty-six hours, are observed. The nutrition is also mostly impaired, the muscles are badly developed, the complexion haggard, the look miserable. The continual absorption of small doses of copper, and its local and direct action, the frequent repetition of toxic and febrile symptoms, and the cachexia at last produced by it, are the causes of the prevalence of consumption among these men. Dr. Perron proposes as a prophylactic measure, that emaciated persons with tuberculous diathesis, should not be allowed to continue this calling, and to recommend as much exercise as is possible, abundant and succulent food, ventilation of the workshops, great cleanliness, baths, the use of aperients and diaphoretics, and the wearing of moustaches.—*Medical Times and Gazette*, November 9, 1861, and *Gaz. Méd. de Paris*, Nos. 39, 40, and 44. Oct., Nov., 1861.

73. *Chronic Poisoning by Arsenic and Copper, consequent on prolonged habitation in rooms painted with Scheele's Green.*—M. LORINER, after a *résumé* of the facts observed by former writers, relates several cases in which persons inhabiting rooms painted green, exhibited remarkable symptoms, which were proved by the analysis of the paint, and of the urine of the patients, as well as by the fact that recovery succeeded removal, to be dependent on mineral poisoning. The following is among the most interesting: A woman, aged fifty-four, was affected at various periods with lancinating, erratic pains referred to the shoulder-joint and nucha, and accompanied with fever. These phenomena increased from year to year until the winter of 1857-58, when the patient became languid, and lost flesh and appetite. She left town, and got well. Towards the end of summer, she returned to her home at Vienna, and rode on horseback daily. In November she was seized with violent fever, lancinating pains in the head and shoulders and subsequently profuse perspirations, followed by disappearance of the fever. The lancinating pains diminished, but she experienced extremely painful sensations of irritation and distraction in the head. These returned regularly every other night, and lasted till morning, the attack always terminating in abundant sweating. The lancinating pains continued in the shoulders, arms, and epigastrium, after the subsidence of the attack. There was complete anorexia, with a clean tongue. Sulphate of quinine, in eight-grain doses, produced no effect.

On analyzing the green paint, it was found to consist of arseniate and acetate

of copper. The patient was treated with iodide of potassium, about two and a half grains three times a day, during which treatment arsenic was contained in the urine in such quantity that its presence could be easily made evident by Marsh's test.

A female, aged seventeen, inhabiting a small room coloured with Scheele's green, was attacked with languor, anorexia, headache, loss of flesh, attributed to amenorrhœa, and had been unsuccessfully treated by steel and a tonic regimen. Languor increased; she became weaker, paler, and thinner, and finally lost her sleep, and became affected with nausea and vomiting. She was removed from her room, and put on iodide of potassium; after which she recovered rapidly.

A female, aged forty-five, contracted typhoid fever; in five weeks she was convalescent, but did not recover strength. She had extreme anorexia, sleeplessness, excessive muscular weakness, with a clean tongue and natural pulse. This continued more than a month, and became aggravated by tremors of the hands, and racking pains in the feet. She rapidly got better on removing from her room. Arsenic was discovered in the urine.

A female, aged twenty-four, was similarly attacked with typhoid fever; after which she fell into a state of debility, which lasted for two years and a half. The catamenia became irregular; she lost appetite, became sleepless, and complained constantly of drumming in the ears. Neither quinine nor iron did good; but she recovered immediately on leaving Vienna. On subsequently returning, the old symptoms reappeared, accompanied with gastralgia, itching of the skin, with occasional nausea and vomiting. Arsenic was discovered in her urine. The green colour was removed from the walls of her room; she rapidly recovered.

The author concludes, from his experience, that the arseniate of copper enters the organism by the lungs in the form of dust. "The better the colour is prepared, and the less the walls are swept, the less powder is detached. If, on the contrary, the colour contains little glue, or is old and deteriorated, a larger quantity of dust is detached." The author does not pretend to determine what are the characteristic symptoms of this kind of poisoning. He calls attention however, to the dyspepsia, epigastric pain, the peculiar perversions of cutaneous sensibility, and the headache, as being most distinctive.—*Nor Syden. Soc. Year-Book*, 1860, from *Wiener Med. Wochens.*, Nos. 43, 44, 1859.

74. *Impregnation of Snuff with Lead*.—SONNENKALB relates nineteen characteristic cases of saturnine poisoning, dependent on this adulteration, in fourteen of which there was paralysis, the remaining five being characterized by gastric symptoms. In the former cases the upper extremities were, for the most part, exclusively affected; and in those in which there was paralysis of the lower limbs it was with one exception preceded by affection of the upper. In one instance slight and transient paralysis of the left side was preceded by three quasi-apoplectic seizures occurring in the course of five weeks. In eighteen cases the onset of the disease was unaccompanied with fever and increase of temperature. In thirteen there were paralysis and atrophy of the extensors, the supinators remaining entirely free from paralysis, and for the most part from atrophy. In four there was arching of the metacarpal bones; and in one the carpal joint was painful on movement, and its synovia was increased. Lead colour of the gums was observed in twelve cases. In all the nineteen the patient was subject to abdominal symptoms, such as colicky pains, and constipation, &c., often for several years. The periods for which the poisoned snuff had been used varied from six months to twenty years. All improved rapidly, and got eventually well on leaving it off. The author considers that the lead is introduced into snuff entirely from the coverings of lead in which it is packed.—*Ibid.*, from *N. deut. Zeitsch.*, vol. xiii. pt. 2.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

A New Instrument for Craniotomy. By LEWIS D. HARLOW, M. D.—This instrument, Figs. 1 and 2, which I have named the cranio-diaclast (signifying an instrument for *breaking through* the skull), or, more briefly, the *diaclast*, is unlike any other heretofore in use, as will be seen by the following description.

The handle and shank are similar to those of the common trocar, differing only in respect to size, and are, when measured together, eleven inches in length. But the chief peculiarity of the diaclast is that portion used for perforating the head.

This consists of a large cone-shaped screw, resembling in form a boy's top, with which every one is familiar. Its length, and the diameter of its base are *equal*, each being one inch or a little less.

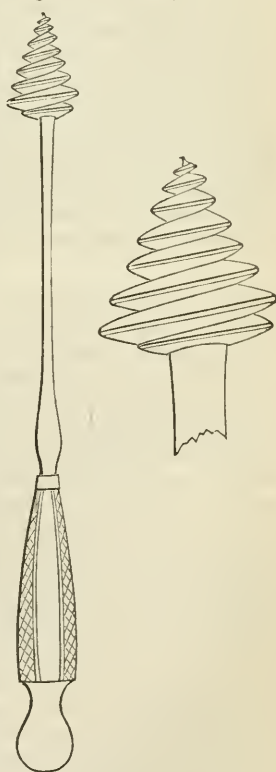
The threads of this spiral cone, or conoid screw, are small and near together just at the point, but increase regularly and rapidly, in size and distance, and become rounded and smooth as they wind from the apex to the base. They present, therefore, no sharp, cutting edges, by which the soft parts of the mother can possibly be wounded; the point only requiring to be guarded until brought in contact with the child's head.

The small end is like that of a common pointed screw, and is made of the best tempered steel. It readily penetrates the cranium by a semi-rotary, drilling motion, and enters, by a few facile turns, wholly within the cavity. This entrance is effected (after the penetration of the point) by the mechanical power of the screw alone; as the spiral beyond the point has no *cutting* edge; but that power has been proved experimentally to be amply sufficient.

As it makes its way through the skull, the bone is broken in pieces, and the fragments are forced asunder, as if the head were being riven by a wedge. Its withdrawal in a direct line requires considerable force, but has the advantage of still further breaking up the bones and leaving in the cranial vault a large open rent, through which the craniotomy forceps can, without difficulty, be passed.

Fig. 1.

Fig. 2.



(CRANIO-) DIACLAST.

FIG. 1.—View of instrument, reduced size.

FIG. 2.—Screw, natural size.

On making trial of this instrument upon well ossified heads of stillborn children, it was found to penetrate, with the greatest ease, the base of the skull or the face, at any point, and separate the fractured pieces, at the will of the operator; thus showing its perfect adaptation to cases of breech-presentation (after the body has been delivered), and of face-presentation, when these are complicated with so great pelvic deformity as to render embryuleia unavoidable.

The advantages of the diachast may be summed up as follows:—

- 1st. It is simple in construction.
- 2d. It is perfectly safe.
- 3d. It may be used with the greatest facility.
- 4th. It is efficient and adapted to all cases.

Luxation of the Femur of fifteen days' standing reduced by Manipulation. By J. M. IRVINE, M. D., of West Barre, Hunt County, Pa.—I was called, January 21, 1859, to see a maiden lady, 68 years of age, who, fifteen days previously, had slipped and fallen on her right limb, which caused it to swell and become intensely painful, the pain being located in the hip-joint. A practitioner was called in who pronounced it a sprain of the hip-joint, and ordered an anodyne liniment to be applied to the part, and left the case to nature. The pain continuing unabated I was called in and found the limb shortened fully three-fourths of an inch, everted, and the head of the femur over the pubis and pushed under Poupert's ligament.

I administered by inhalation a mixture of equal parts of sulphuric ether and chloroform until the patient was under the influence of the anæsthetic. I then proceeded to flex the leg on the thigh, and the thigh on the pelvis. After carrying the knee over the umbilicus I carried it over to the left side of the body and brought the limb into a state of extension, when the head of the bone immediately slipped into the acetabulum with an audible snap.

Case of Ruptured Uterus. By NATHAN S. KING, M. D., of Bloomfield, N. J.—Mrs. Mary V., aged 31 years, a native of Ireland, a strong, robust looking woman, about two weeks before her confinement applied to me to attend her. She stated that she had given birth to three children at full time, but that from some deformity of her pelvis her labours had all been difficult, having to be terminated by the use of the forceps, and the children all being dead. She said she was advised by her last physician that if she ever again became pregnant to have labour produced at seven months. A few days after I called, and, making an examination, found the antero-posterior diameter somewhat diminished, the projection of the promontory of the sacrum increased, and an increase downwards of the inclination of the pubis. She had at this time the premonitory symptoms of labour. I was able easily to make out a natural presentation. I left, merely giving her some general directions. At 7 o'clock the next evening (Oct. 24), I was summoned in haste to Mrs. V. I found the contractions of the uterus violent and almost continuous, the os uteri well dilated, but the membranes not yet ruptured, and the head of the child resting firmly on the os pubis, not yet having engaged in the superior strait. Her bowels had been well opened during the day and she had continued to urinate freely. The pains still continuing severe, and no change being perceptible in the position, I soon placed her on her back, ruptured the membranes, and with my hand endeavoured to depress the head from the pubis, but with no success. The pains continued violent, almost throwing the patient

into convulsions, until about 11 o'clock, when the pains suddenly ceased and the child somewhat receded, with a considerable gush of blood from the vagina; yet the patient made no exclamation that anything had occurred, as they are often described as doing in a case of ruptured uterus. Having a pair of short forceps at hand I endeavoured to reach the head, but was unable to. Vomiting coming on and the patient beginning to sink, and desiring to be let alone to die, I immediately sent for assistance and began to give her stimulants. Assistance soon arriving, and her pulse having somewhat improved, we proceeded to deliver her by turning. The feet were easily found and brought down, but it was with great difficulty that the head could be delivered. At first I could not find the placenta, but by tracing up the cord it was found escaped from the cavity of the uterus through a rent on the right side of the body; by strong traction on the cord it was finally withdrawn. The uterus seemed to contract but very little. I immediately gave her an anodyne with directions to continue it every hour until patient became quiet. The next morning I found her as comfortable as could be expected, having become quite easy since 7 o'clock, with one or two short naps. Pulse fair, about 100. Pain not severe though considerable tenderness, especially on the right side. Continued anodyne with calomel every three hours, with a poultice over the whole abdomen. She continued quite comfortable during the day. Next morning found her not as well. Pain and tenderness increased, with occasional vomiting during the night. During the forenoon vomiting came on almost continuously of dark green and watery matter, which continued until 3 P. M., when it entirely ceased. In the evening found her rather more comfortable. Pulse 110. Pains not great but extremely tender on pressure, with great tympanitis. Continue the same treatment. About 2 o'clock A. M. was called to patient and found her in collapse. Pulse not discernible. She continued perfectly conscious until 4 o'clock, when she died, being fifty-two hours from her delivery. No post-mortem was allowed.

DOMESTIC SUMMARY.

Treatment of Fractures by Plaster of Paris Splints.—DR. JAS. L. LITTLE, Resident Surgeon to New York Hospital, highly extols (*American Med. Times*, Dec. 7, 1861) plaster of Paris splints in the treatment of fractures. The advantages of this apparatus are, he states, "its facility of application, and its perfect adaptation to the limb, being borne by the patient better than any other form of apparatus. Although we have applied it more than twenty times, and in every case directly against the integument, yet in no instance has it given rise to any undue pressure over the malleoli or heel—points which are apt to trouble the surgeon considerably. Another interesting feature may be stated, that it has never produced any excoriations, but, on the contrary, in several instances where it has been applied over denuded surfaces, it has apparently exercised a healing effect.

"Its advantages over the starch bandage are its rapidity of drying and hardening, the plaster taking about five minutes 'to set,' while being held by the surgeon in its proper position; the starch apparatus requiring several days to dry unless artificial heat is applied. Another advantage is, that the limb can be inspected daily if necessary, without removing all the apparatus. It, therefore, can be applied much earlier than we have been in the habit of resorting to the starch bandage. It may be well to state that the starch apparatus has been generally used in the New York Hospital only after the fracture has become tolerably firm, since in several instances where it has been applied early in the

treatment, marked deformity has resulted. But the plaster of Paris casing allows the anterior surface of the limb to be exposed, and any displacement can consequently be readily detected.

"Its advantage over the gutta percha is its great *porosity*, keeping the limb perfectly dry without confining the perspiration, and thus doing away with one cause of irritation and excoriation. It does not require padding like the gutta percha, and it is much cheaper, an important item in hospital practice.

"*The mode of application to the leg is as follows:* The limb is first shaven or slightly oiled; a piece of old coarse washed muslin is next selected of a size so that when folded about four thicknesses it is wide enough to envelop more than half of the circumference of the limb, and long enough to extend from a little below the under surface of the knee to about five inches below the heel. The solution of plaster is then to be prepared. Fine, well dried, white plaster had better be selected, and before using a small portion should be mixed with water in a spoon and allowed 'to set,' with a view of ascertaining the length of time requisite for that process. If it is over five minutes, a small quantity of common salt had better be dissolved in the water before adding the plaster. The more salt added, the sooner will the plaster 'set.' If delay be necessary, the addition of a few drops of carpenter's glue or mucilage will subserve that end. Equal parts of water and plaster are the best proportions. The plaster is sprinkled in the water and gradually mixed with it. The cloth, unfolded, is then immersed in the solution and well saturated; it is then to be quickly folded as before arranged and laid on a flat surface, such as a board or a table, and smoothed once or twice with the hand in order to remove any irregularities of its surface, and then, with the help of an assistant, applied to the posterior surface of the limb. The portion extending below the heel is turned up on the sole of the foot, and the sides folded over the dorsum and a fold made at the ankle on either side, and a roller bandage applied pretty firmly over all. The limb is then to be held in a proper position (extension being made if necessary by the surgeon), until the plaster becomes hard. The time required in preparing the cloth, mixing the plaster, and applying the casing to the limb, need not take more than fifteen minutes. After the plaster is firm and the bandage removed, we will have a solid plaster of Paris case partially enveloping the limb, leaving a portion of its anterior surface exposed to view. If any swelling occurs evaporating lotions can be applied to the exposed surface, and we can always easily determine the relation of the fractured ends. If necessary, an anterior splint, made of the same material, can be applied, and then both bound together with adhesive plaster, and if desirable, a roller bandage over all. If the anterior splint is not used, two or three strips of adhesive plaster, one inch wide, or bands of any kind, may be applied around the casing, and will serve to keep it firmly adjusted to the limb. Thus applied, we have a most beautiful splint, partially enveloping the limb, making equal pressure, light, and allowing the patient to change his position in bed, or to sit up in a chair, or go about on crutches; and a splint which can be easily made in any place where plaster is to be had.

"This mode of dressing may be applied with great advantage in most cases of fractures of the tibia and fibula. In oblique fractures of the tibia with the projection of the superior fragment, it is well known how difficult it is to overcome the deformity; with the plaster of Paris splint, however, the results have been all that could be desired. After extension of the limb on the part of an assistant for the sake of bringing the fragments into perfect apposition, and while thus held, the plaster splint should be applied and allowed to harden.

"The limb is thus perfectly immovable. A strip of two or three thicknesses of muslin, about three inches wide, saturated with the plaster, may be applied transversely, if necessary, over the upper fragment, so as to bind it down in position. The cases in which this mode of dressing is not applicable, are those of fracture of the fibula with rupture of the internal lateral ligament, or, what is more common, a chipping off of a portion of the internal malleolus with the turning of the foot outwards. Where the deformity is considerable it cannot always be overcome at once, but requires steady pressure, with properly arranged pads, and the side splints, to bring out that result. This effected, to a certain extent, the plaster apparatus may be applied with advantage. In cases of fracture of

the fibula, without any displacement of the foot, it may be applied early in the treatment; upon the entire subsidence of the swelling it will become necessary to apply a new one. This second dressing in most cases will be sufficient for the remaining treatment.

"In fractures about the knee-joint and in cases of *synovitis*, where a posterior splint or knee-cap is needed in order to keep the limb in a straight or semi-flexed position, this mode of forming a splint can be made use of and answers better than the gutta percha. We have applied it to one case of *synovitis* after the acute symptoms had been subdued by the means of extension and counter-irritation, and it formed a very good posterior splint. In fractures of the tarsal bones it may likewise be used with advantage. Here it should be long enough to envelop the foot as far up as the toes.

"Two cases of fracture of the *astragalus* have been treated in this manner with good results.

"For fractures of the lower jaw, it can be made use of to construct a splint in the usual manner.

"In fractures of the neck of the humerus, where a shoulder splint, as recommended by Hamilton, is necessary, this may be made use of; it would make a much better and cheaper splint than the gutta percha, and it would fit the shoulder more accurately than any wooden splint that could be made.

"In fractures of the shaft of the bone it may also be used. It should be long enough to extend from the shoulder to the hand, and applied to the outside of the limb, the limb being flexed to a right angle, and extension being made so as to keep the fragments in position until the plaster 'sets.' If necessary, a small splint made of the same material can be applied to the inner side of the arm, and both bound together with a bandage. The limb, of course, is to be placed in a sling.

"For fractures at the base of the condyles, and other fractures in the vicinity of and involving the elbow-joint, which require the arm to be kept in a flexed position, this is decidedly the best mode of dressing. For this purpose angular splints made of tin, gutta percha, or pasteboard, are commonly used, and all require some little time for their construction. The plaster of Paris splint can be made in five minutes, and will fit itself to the inequalities of the arm more accurately than any other.

"Although we have had no opportunity of witnessing its application in cases of club-foot, we may venture an opinion that no better shoe could be constructed, and none which would fulfil more indications after tenotomy has been performed, than by these accurate mouldings to the limb. During and for a while after the application of this dressing, due attention should be paid to adjustment of the foot. The gutta-percha shoe, which is more troublesome to make, and certainly in many respects not as good, might thus be dispensed with."

Dr. L. recommends this mode of dressing in all instances where dispatch is important. "Many valuable lives," he remarks, "perhaps might be saved, and much suffering certainly alleviated upon the battle-field, by a resort to this expedient. No great amount of surgical skill is requisite for its use, and not much room need be taken up in the packing away of the plaster in its dry state, proper care, of course, being taken to prevent the contact of moisture." Again, the art of its application, if such we may style it, can be very readily communicated to any of ordinary intelligence, such, for instance, as those presumed to compose an ambulance corps. Patients with limbs dressed in this manner might be transported comfortably."

Poisoning by Aconite—Successful Use of Nux Vomica as an Antidote.—In a preceding part of this No. (see p. 276), we have given some experiments made on animals to ascertain the applicability of aconite for the relief of poisoning by strychnia, and remarked that observations on the human subject were required to confirm the antagonistic action of these articles.

Such confirmation is afforded by the following case, related by Dr. D. D. Hanson (*Boston Medical and Surgical Journal*, September 26, 1861):—

The subject of it was a coloured boy, 5 years of age, who surreptitiously took a mixture of tincture of aconite and simple syrup. When seen by Dr. H.

he was "comatose, the eyes half closed, expressionless, the pupils insensible to light, though not much dilated. The pulse was feeble and irregular, respiration requiring artificial aid to support it, and the muscles and ligaments so much relaxed that he could neither stand up nor sit unless supported. His respiration finally degenerated to a gasp, occurring five or six times the minute, then he would convulsively straighten out in the lap of his attendant, throw his head and shoulders back, and his hands over his head, as if, mechanically, to get a longer and fuller inspiration, then relax into the same state as before.

"No time was lost in getting his feet into hot water, sinapisms on the soles of the feet, calves, and over the abdomen and chest. I failed in my attempts to get an emetic dose of mustard into the stomach, from its bulk and difficult deglutition. Ipecac and antimony being the least bulky of anything at hand, I forced down a double dose; soon after I irritated the fauces with a feather. Fifteen minutes passing, and no signs of vomiting having appeared, I repeated the dose, and irritated the throat as before. No retching occurred from this at the expiration of half an hour from the first dose, the respiration grew more difficult, and the pulse became imperceptible at the wrist. He was sinking, evidently, and the emetics were aiding the poison instead of the patient, as the muscular fibres of the stomach were rendered insensible to expulsive stimuli by the depressing influence of the poison, and the difficult respiration and deglutition were referable to the operation of the same cause upon the diaphragm and pharynx. The case now appeared desperate, unless these tissues could be excited, and nux vomica was manifestly capable of producing this effect, as its full therapeutic action was the exact opposite of that now dominant from the poison. Impressed with this idea, I gave him three drops of the tincture of nux vomica; I then placed my finger upon the wrist and awaited the result. My pleasure can be well imagined when, in a few minutes, I felt the heart's impulse returning with accelerated vigour as the tincture became more and more absorbed, and the respirations were correspondingly improved in steadiness and depth. At the end of twenty minutes I repeated the dose, soon after tickling the fauces with the feather. Retching was soon induced, and vigorous emesis followed. After this operation, young ebony opened his eyes, and after satisfying himself that matters were progressing circumspcctly, he coolly lay back in the lap of his attendant, with a quiet and steady respiration and pulse. I remained half an hour longer, when I considered him safe, and left him, with directions to take three drops once in three hours during the night, allowing him to sleep during the intervals if the breathing continued regular. The next day I found him sitting in a chair, and apparently fully recovered, having rested well during the night, and taken light nourishment during the day. I left him two drop doses of the tincture for meal times during three days, to insure perfect tone of the muscles.

"As corollary to this, I think it may be said that nux vomica is a complete antidote to aconite, and, conversely, that aconite is equally an antidote to nux vomica."

Hydrargyrum Cum Cretâ.—The unreliability and sometimes harsh action of this preparation has for some time past attracted the attention of physicians, and the subject having been brought to the consideration of the Berkshire District Medical Society, Dr. SAMUEL DUNCAN was requested to make a chemical investigation of the article. In his report, recently made, he presents the following conclusions:—

"1st. When this preparation of mercury is exposed to the light, especially during the summer, a portion of the suboxide which it contains, is decomposed into the metal and red oxide (protoxide), which, in sufficient quantity, always acts as a violent irritant poison.

"2d. That the older the preparation, and longer the exposure to light, the less the mercury, and greater the amount of the oxide.

"3d. That in order to have a perfectly reliable article of hydrargyrum cum cretâ, it should be made of pure material, kept in a cool place, and excluded from the light.

"4th. That freshly made and light-coloured specimens are best, and those of a deep colour should be rejected.

"5th. That this preparation is unstable; that it tends to separation by the volubility of its mercury, and the superior mobility and gravity of its particles.

"6th. That we have no reason to suppose that mercury, however pure, exerts any influence on the system in its metallic state; but that it must first be converted into an oxide, and this oxide must be basic to a soluble compound; and that the amount of suboxide in hydrargyrum cum cretâ is not at all injurious, providing, however, it remains as such; and that when this preparation proves an irritant in itself, it is due to a higher degree of oxidation."

Dr. HENRY M. SEELY, who has made a chemical analysis of some specimens of the hydrargyrum cum cretâ, reports that a specimen he analyzed, "which originally should have contained 37.5 parts of metallic mercury, 22.25 parts had changed to the red oxide, and 4.05 parts to the black oxide, leaving less than a third of the metallic mercury in its original condition.

"With the knowledge of such a change in the character of the metallic mercury before us, we need look no farther," says Mr. S., "for the cause of the alarming result attending the use of long-kept samples of hydrargyrum cum cretâ; the oxide existing in the powder produced by the gradual oxidation of the finely divided particles of mercury, probably being converted in the fluids of the stomach into compounds of a more energetic character."—*Berkshire Medical Journal*, November and December, 1861.

Solution of Persulphate of Iron in Bright's Disease.—Dr. WHITE, at a recent meeting (Oct. 1) of the Buffalo Medical Association, called attention to the use of the solution of persulphate of iron in albuminuria, and related a case in which he had employed it in doses commencing with fifteen drops, three times a day, and gradually increasing it to forty drops, with marked benefit.

A New Hæmostatic; the Pengawar-Djambe (Palea Cibotii). By E. H. JANES, M. D.—This new hæmostatic is derived from the stipes of a fern of Java, and consists of very soft, delicate filaments, flexible, and so light as to float in the air for a long time. They vary in colour according to their thickness, from a golden, light brown, to a dark gray or blackish. It is said that six grains form a mass sufficient to arrest bleeding from an artery one line in diameter. It absorbs water so readily as to sink in about half a minute. When subjected to heat, it yields an empyreumatic odour, and detonates under combustion. Its styptic effects are supposed to depend upon its capillary attraction overcoming the force by which the water in the blood is held in combination, the immediate consequence of which is the coagulation of the remaining portion of the blood, by which, together with the elasticity of the filaments, now enlarged by the absorption of fluid, a firm adhesion of the coagulum to the surface of the wound takes place, causing a firm closure of the mouths of the bleeding vessels. The advantages claimed for it over other styptics are, that the effect is quicker, that it produces a coagulum where other agents have failed—as in carcinomatous or scorbutic ulcers, and that it does not retard the healing process. When used, it should be crumbled, and a sufficient quantity (five grains to a scruple) pressed for a few minutes directly on the bleeding surface, afterwards applying a suitable compress. By this means it is made to penetrate into the finest apertures on the surface of the wound, causing instant coagulation of the blood oozing from the smaller vessels, and said to be reliable in all cases where the divided artery does not exceed a line and a half in diameter. Whether experience will substantiate what authors have told us concerning this much extolled styptic, remains with us to be seen.—*New York Med. Times*, Dec. 21, 1861.

Gross's System of Surgery.—Just as this sheet was preparing for press, we have had placed in our hands a second edition of this elaborate work. We shall notice this edition particularly in our next Number, but may mention at present that the work has been entirely revised, much new matter introduced, and nearly three hundred illustrations added.

We are pleased also to find that the subject of gunshot wounds, which are now invested with such fearful interest for us, has had especial attention bestowed on it.

HARVARD UNIVERSITY.

SUMMER SESSION OF THE MEDICAL DEPARTMENT.

THE Annual Course of Summer Instruction in the Medical Department of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on Monday, March 10, 1862, and continue till November.

Clinical, Medical, and Surgical Instruction will be given at the Massachusetts General Hospital, adjoining the College.

Recitations from approved text-books will be held daily during the session at the College, upon all branches necessary to a medical education. Occasional lectures are also given, and demonstrations, illustrated by the Museums of the College.

During the Summer Session, instruction is given by lectures at Cambridge, on Botany, by Prof. Gray; on Comparative Anatomy, by Prof. Wyman; on Zoology, by Prof. Agassiz; on Acoustics and Optics, by Prof. Lovering. To these lectures, students of the Summer Session will be admitted without extra charge.

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We value highly the direct results of the au-

thor's long practical experience, and the truly profound judgment that is evinced in the direct practical conclusions drawn.—*Boston Med. and Surg. Journal*, Feb. 14, 1861.

This volume is destined to take a conspicuous place among the most valuable original contributions to American medical literature. We therefore cheerfully recommend it to the attention of our readers.—*Southern Med. and Surg. Journal*, April, 1861.

It is not a compilation, or a book of excerpts, clipped from the works of others, but one consisting of "the results of his own observations and reflections towards the improvement of medicine." Such a book is at least refreshing; but Dr. Hodge's shall be found useful and instructive, as well.—*Dublin Quarterly Journal*, May 1861.

THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES
FOR APRIL 1862.

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TO READERS AND CORRESPONDENTS.

WE are happy to announce that Prof. AUSTIN FLINT will be a regular contributor to this journal, and will furnish a series of articles on subjects relating to practical medicine. Prof. F. is one of our best and most industrious clinical observers; he has for years been collecting records of causes treated by him, and at present he occupies a position which affords him a vast field for clinical studies. We can confidently promise our readers that Prof. F. will compile from these materials papers of the most instructive character and of the highest practical value.

The Reviews of Saurel's Treatise on Naval Surgery, and of Dobbell's Lectures on the Germs and Vestiges of Disease, were crowded out of the present number, but shall appear in our next.

The following works have been received:—

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. 2d Series, Vol. XXVI. London, 1861. (From the Society.)

Clinical Essays. By BENJ. W. RICHARDSON, M. A., M. D., Senior Physician to the Royal Infirmary for Diseases of the Chest. *Asclepiad*. Vol. I. John Churchill, London, 1862. (From the Author.)

On the Health of Merchant Seamen. By J. O. McWILLIAM, M. D., &c. &c., Medical Inspector of Her Majesty's Customs. London, 1862. (From the Author.)

Observations on the Growth of the Long Bones and of Stumps. By GEORGE MURRAY HUMPHREY, M. D., F. R. S., &c. London, 1861. (From the Author.)

Transactions of the Epidemiological Society of London. Vol. I. Pt. II. (From the Society.)

The Granulation of Medicines. By THOMAS SKINNER, M. D., Physician to the Liverpool Dispensaries, &c. &c. London, 1862. (From the Author.)

A System of Surgery; Pathological, Diagnostic, Therapeutic, and Operative. By SAML. D. GROSS, M. D., Prof. Surg. in Jefferson Med. Coll., &c. &c. Illustrated by 1227 engravings. Second edition, much enlarged and carefully revised. In two volumes. Philadelphia: Blanchard & Lea, 1862. (From the Publishers.)

Anatomy; Descriptive and Surgical. By HENRY GRAY, F. R. S., Lecturer on Anatomy at St. George's Hospital Medical School. The Drawings by H. V. Carter, M. D., Late Demonstrator of Anatomy. The Dissections jointly by the Author and Dr. Carter. Second American, from the revised and enlarged London edition, with 395 engravings on wood. Philadelphia: Blanchard & Lea, 1862. (From the Publishers.)

On Bandaging and Other Operations of Minor Surgery. By F. W. SARGENT, M. D., &c. &c. New edition, with an additional chapter on military surgery, by W. F. ATLEE, M. D., and 187 illustrations. Philadelphia: Blanchard & Lea, 1862. (From the Publishers.)

Commentaries on the Surgery of the War in Portugal, Spain, France, and the Netherlands, from the battle of Roliça, in 1808, to that of Waterloo, in 1815; with additions relating to those in the Crimea, in 1854-1855; showing the improvements made during and since that period in the great art and science of surgery on all the subjects to which they relate. Revised to Oct. 1859. By G. J. GUTHRIE, F.R.S. Sixth Edition. Philadelphia: J. B. LIPPINCOTT & Co., 1862. (From the Publishers.)

Proceedings of the Academy of Natural Sciences of Philadelphia, October, November, December, 1861.

Extracts from the Records of the Boston Society for Medical Improvement, with Papers read before the Society. By FRANCIS MIXOT, M. D., Secretary of the Society. Vol. IV., No. 4. Boston, 1862. (From the Society.)

Eighth Report to the General Assembly of Rhode Island, Relating to the Registry and Returns of Births, Marriages, and Deaths, in the State, for the year ending December 31, 1860. Prepared under the direction of JOHN R. BARTLETT, Secretary of State. Providence, 1862. (From Edward A. Crane, M. D.)

Report of the Pennsylvania Hospital for the Insane for the year 1861. By THOS. S. KIRKBRIDE, M. D., Physician and Superintendent. Philadelphia, 1862. (From the Author.)

Annual Report of the Board of Trustees of the Wisconsin State Hospital for the Insane, for the year 1861. Madison, Wis., 1861.

Thirteenth Annual Report of the Regents of the University of New York, on the Condition of the State Cabinet of Natural History, and of the Historical and Antiquarian collection annexed thereto. Made to the Senate April 10, 1860. Albany, 1860.

Seventh Annual Report of the Board of Trustees and Officers of the Northern Ohio Lunatic Asylum, to the Governor of the State of Ohio, for the year 1861. Columbus, 1862. (From Dr. O. C. Kendrick.)

Border Lines of Knowledge in some Provinces of Medical Science. An Introductory Lecture, delivered before the Medical Class of Harvard University, Nov. 6th, 1861. By OLIVER WENDELL HOLMES, M. D., Parkman Professor of Anatomy and Physiology. Boston: Ticknor & Fields, 1862.

Amputation of the Cervix Uteri. By J. MARION SIMS, M. D. New York, 1861. (From the Author.)

On the Animal Substances Employed as Medicines by the Ancients. By G. J. FISHER, M. D., of Sing Sing, N. Y. (From the Author.)

Medical Topography of Camden Co., New Jersey. By OTHNIEL H. TAYLOR, M. D. (From the Author.)

Valedictory Address delivered before the Graduating Class of Jefferson Medical College, of Philadelphia, March 8, 1862. By SAMUEL HENRY DICKSON, M. D. Published by the Class. Philadelphia, 1862. (From the Author.)

The following Journals have been received in exchange:—

Gazette Médicale de Paris. November, December, 1861, January, 1862.

Journal de Médecine de Bordeaux. July, August, October, December, 1861.

Journal de la Physiologie de l'Homme et des Animaux. Publié sous la direction du Docteur E. BROWN-SÉQUARD. July, 1861.

British and Foreign Medico-Chirurgical Review. January, 1862.

The Medical Critic and Psychological Journal. Edited by FORBES WINSLOW, M. D., D. C., L. Oxon. January, 1862.

Royal London Ophthalmic Hospital Reports. January, 1862.

Dublin Quarterly Journal of Medical Science. February, 1862.

The Half-Yearly Abstract of the Medical Sciences. By W. H. RANKING, M. D., and C. B. RADCLIFFE, M. D. July—December, 1861.

The Retrospect of Medicine. B. W. BRAITHWAITE, M. D., and JAMES BRAITHWAITE, M. D. July—December, 1861.

Medical Times and Gazette. January, February, March, 1862.

British Medical Journal. December, 1861, January, February, 1862.

Dublin Medical Press. November, December, 1861, January, February, March, 1862.

Glasgow Medical Journal. January, 1862.

London Medical Review. December, 1861, January, February, 1862.

Edinburgh Medical Journal. December, 1861, January, February, 1862.

British American Journal. Edited by ARCHIBALD HALL, M. D., Professor of Midwifery and Diseases of Women and Children in McGill College. January, February, 1862.

Boston Medical and Surgical Journal. Edited by F. E. OLIVER and S. L. ABBOT, M. D. January, February, March, 1862.

American Medical Times. January, February, March, 1862.

The Cincinnati Lancet and Observer. Edited by ED. B. STEVENS, M. D., and J. A. MURPHY, M. D. January, February, March, 1862.

Ohio Medical and Surgical Journal. Edited by the Faculty of Starling Med. College. January, 1862.

The American Journal of Insanity. Edited by the Medical Officers of the New York State Lunatic Asylum. January, 1862.

American Medical Monthly. Edited by J. H. DOUGLAS, M. D. December, 1861, February, March, 1862.

The Pacific Medical and Surgical Journal. Edited by JAMES BLAKE, M. D. November, 1861.

The Chicago Medical Journal. Edited by D. BRAINARD, M. D., and J. A. ALLEN, M. D. December, 1861, January, February, March, 1862.

Buffalo Medical and Surgical Journal and Reporter. Edited by J. F. MINER, M. D. January, February, March, 1862.

The Chicago Medical Examiner. Edited by N. S. DAVIS, M. D., and F. W. REILLY, M. D. December, 1861, January, February, 1862.

The Cincinnati Medical and Surgical News. Edited by A. H. BAKER, M. D., and J. A. THACHER, M. D. January, February, 1862.

The American Journal of Science and Arts. Edited by Professors B. SILLIMAN, B. SILLIMAN, Jr., and J. D. DANA. January, March, 1862.

American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by WM. PROCTOR, JR., Professor of Pharmacy in Philadelphia College of Pharmacy. January, March, 1862.

American Druggists' Circular and Chemical Gazette. January, March, 1862.

The Dental Cosmos. Edited by J. D. WHITE, D. D. S., J. H. McQUILLAN, D. D. S., and GEO. J. ZIEGLER, M. D. January, 1862.

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Private communications to the Editor may be addressed to his residence, 1525 Locust Street.

ALL REMITTANCES OF MONEY, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

 The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

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2. Commentaries on the Surgery of the War in Portugal, Spain, France, and the Netherlands, from the battle of Roliça, in 1808, to that of Waterloo, in 1815; with additions relating to those in the Crimea in 1854-1855, showing the improvements made during and since that period in the great Art and Science of Surgery on all the subjects to which they relate. Revised to October, 1855. By G. J. Guthrie, F. R. S. Sixth edition. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 614.
3. A Treatise on Gunshot Wounds. By T. Longmore, Esq. Deputy Inspector-General of Hospitals; Professor of Military Surgery at Fort Pitt, Chatham. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 132. 425
- XII. *Traité d'Hygiène Navale ou de l'Influence des Conditions Physiques et Morales dans lesquelles l'Homme de mer est appelé à vivre et des moyens de conserver sa santé.* Par le Docteur J. B. Fonssagrives, Professeur à l'école de Médecine navale de Brest. Illustré de 57 planches intercalées dans le texte. 8vo. pp. 770. Paris, chez J. B. Baillière, 1856.
- Treatise on Naval Hygiene, or on the Influence of the Physical and Moral Conditions to which Seamen are exposed, and of the Means of preserving their Health. By Doctor J. B. Fonssagrives, Professor in the School of Naval Medicine at Brest. Illustrated by 57 plates, &c. 435
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THE
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ART. I.—*On the Distinctive Characters of the Pulmonary Signs obtained by Percussion and Auscultation.* By AUSTIN FLINT, M. D., Professor of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, and in the Long Island College Hospital.

WHAT requirements are needed to carry, as near as possible, to perfection the methods of physical exploration, the successful application of which to the diagnosis of diseases of the chest is to be dated from the labours of the immortal Laennec? This question will serve to open up, quickly, the field of inquiry, which it is the purpose of this article to survey. A little deliberation will, we think, render it clear that the requirements for the object stated are embraced in four divisions.

The *first* requirement is an acquaintance with all the signs which exist. None must remain to be discovered. Here is especially apparent the astonishing success of the labours of Laennec. He ascertained the greater part of the signs relating to the pulmonary system, which are now known to exist, leaving but few to be discovered by those who have followed in his footsteps. We cannot say that no new signs are to be hereafter added to the list of those already known. Continued observation, with improved means of exploration, may develop sounds which have so far escaped detection; but certainly much is not to be hoped for in this direction.

The *second* requirement is a full comprehension of the significance of each sign. Each sign has a definite signification; it represents some special abnormal physical condition. Now, our knowledge of auscultation and percussion cannot approach perfection, until the precise meaning of each sign be known. Here, too, the labours of Laennec were successful in an astonishing degree. Clinical observers, since his time, have not found very much to alter or modify, as regards the import of the signs which he pointed out.

A *third* requirement is understanding of the mechanism of all the signs. We could hardly declare our knowledge of auscultation and percussion to be as near as possible to perfection, if we were unable to explain the manner in which the signs are produced. Yet, it is to be always borne in mind that it is by no means necessary to understand the mechanism of the signs, in order to know fully their significance and value. We know that each sign represents a certain physical condition, simply because clinical observation and examinations after death have established the fact that the sign and the physical condition are constantly associated, the former being never present without the latter. It is not enough to argue from a sign that a certain physical condition must co-exist, or from a given physical condition, that it ought to give rise to such a sign. Dependence on this *à priori* reasoning cannot fail to lead to error. Even Laennec, with his cautious and logical mind, did not altogether escape error from this source, and it is easy to see that later observers have erred in a similar way. Thus, it is only by supposing the mind to have been influenced by the manner of explaining the crepitant rale, that a justly distinguished author has been led to state that this sign may be present in the act of expiration, as well as in inspiration, and that another author says it is oftener heard in the *second* than in the first stage of pneumonia. It could have been only from a bias derived from the conviction that a pulmonary cavity must give rise to pectoriloquy, that Laennec was betrayed into the absurdity of describing a variety of this sign under the name of doubtful pectoriloquy. In general, however, we believe the explanations of the signs, as given by Laennec, to be correct, and with regard to some important signs, *e. g.*, bronchial respiration and bronchophony, the recent attempts to explain the mechanism of their production differently, seem to us to lead backward, rather than advance our knowledge of the subject.

A *fourth* requirement is information, complete and accurate, concerning the distinctive characters which belong to all the signs respectively. Here Laennec accomplished vastly less than in the preceding divisions. Here, too, the labours of others have left a far larger scope for advancement, than with respect to the discovery of new signs, the connection between signs and physical conditions, and the explanation of the mechanism of signs. It is not to be wondered at that Laennec devoted so little attention to the distinctive characters of signs. The great objects with him were to discover signs, and to determine their significance. It was enough for him that he himself recognized the different signs, and that he was able to point them out to others. He had not time to inquire into the elements which enter into the various sounds obtained by percussion and auscultation, and the importance of this analytical inquiry has not sufficiently impressed itself on the minds of others. It is curious to observe how meagre are the descriptions of the signs in the great work of the illustrious discoverer of auscultation. Thus, in describing the bronchial respiration, as

heard over the larynx, trachea, and bronchi, he contents himself with saying as follow : “ *Ce bruit a un caractère tout-à-fait particulier; le murmure respiratoire, surtout dans l’inspiration, est dépourvu de la légère crépitation qui accompagne le développement des cellules aériennes; il est plus sec en quelque sort, et l’on sent distinctement que l’air passe dans un espace vide et assez vaste.*” So, with regard to the normal vesicular breathing, he is satisfied to describe it in these terms : “ *Ce murmure peut-être comparé à celui d’un soufflet dont la soupape ne ferait aucun bruit, ou mieux encore à celui que fait entendre à l’oreille nue un homme qui, pendant un sommeil profond, mais paisible, fait de temps en temps une grand inspiration.*” Laennec overlooked, in a great measure, the expiratory sounds, although these furnish the most distinctive of the characters pertaining to the bronchial and cavernous respirations.

Others have contributed to supply these deficiencies of Laennec, but we have long entertained the belief that here is the great defect in the manner in which the physical exploration of the chest has generally been presented by writers and oral teachers. The distinctive characters of well-known signs have not been studied with sufficient thoroughness and minuteness. Hence, the different signs are by many imperfectly understood, not readily discriminated in practice, and often confounded. If we are not mistaken, it is because the characters, by means of which morbid signs are to be distinguished from each other, and from the signs of health, have not been adequately studied, that there are so many mere smatterers in physical exploration, and that so large a portion of the profession bestow little or no attention on the subject. It is with these views that we propose, in this article, to consider the sources whence are derived the distinctive characters of the signs obtained by percussion and auscultation, and to ask the attention of the reader to the practical advantages of an extension of our knowledge in this direction.

Most of the pulmonary signs obtained by percussion and auscultation may properly be called *sounds*, or, at all events, they may be discriminated by the same means by which different sounds are distinguished from each other. Now, what are the elements entering into different sounds, and investing them with distinctive characters, by which they are practically distinguished from each other? One element is *intensity*. Sounds differ as regards mere loudness. This is sufficiently simple. Another element is *pitch*. Sounds differ as regards their relative situation in the diatonic scale; in other words, they are high or low, acute or grave sounds. In the discrimination of the pulmonary signs obtained by percussion and auscultation, characters derived from variations in pitch are of the greatest importance. To these characters especially we would ask the reader’s attention. We hope we do not commit an indelicacy in expressing the belief that certain distinctions based on this element, which we claim as original, will be found to be of great value in their practical applications. Another

element is *quality*. This is a highly important element. Sounds emanating from different sources are distinguished mainly by differences as regards quality. We recognize without difficulty tones produced by different musical instruments, although the instruments are unseen, provided we are familiar with the tones which the instruments produce. The element in these tones, by means of which we distinguish them, is not intensity, nor is it pitch; the recognition is equally easy whether the tones are loud or feeble, or whether they are high or low. It is the quality of sound which characterizes each musical instrument, and, in like manner, particular sounds which are not musical.

These three elements—viz., intensity, pitch, and quality—enter into the sounds obtained by percussion and auscultation. Like other sounds, they are to be discriminated by distinctions based on differences as regards these elements. It is only by basing their distinctive characters on distinctions relating to intensity, pitch, and quality (more especially the two latter), that our knowledge of them, as signs, is rendered accurate, complete, and easily required. Other points of difference, it is true, are involved. The rhythmical succession of the sounds produced by the inspiratory and expiratory acts, and the relative duration of the sounds produced by these two acts, furnish important characters pertaining to certain signs. But, exclusive of these points, the different pulmonary signs obtained by percussion and auscultation are to be distinguished from each other by differences relating to intensity, pitch, and quality of sound.

The more important of the morbid pulmonary signs obtained by percussion and auscultation being not newly developed or adventitious, but abnormal modifications of normal sounds, their distinctive characters, of course, are to be determined by taking the latter as the standard for comparison. Hence, the normal sounds are to be first analyzed, and their characters ascertained. Subjecting to this analytical process the resonance produced by percussion upon the healthy chest, we ascertain it to be a sound varying in intensity accordingly as the blows are strong or weak, but varying, in this regard, in different persons, irrespective of the force of the percussion. We find it to be a low-pitched sound in comparison with the abnormal modifications of the sound. It has a quality, *sui generis*, as peculiar to the healthy chest as the notes of the violin, for example, are peculiar to that instrument. We designate this indescribable quality *vesicular*, and introduce this name in the title of the normal sound when we call it the "*normal vesicular resonance*." In like manner we analyze the murmur heard in auscultating the healthy chest, and we ascertain that this murmur consists of a sound with the act of inspiration, and a sound, usually, with the act of expiration, and that both the inspiratory and expiratory sound varies, as regards intensity, in different persons. We find that the inspiratory sound is low in pitch, as compared with the abnormal modifications; and that it has a certain quality which is *sui generis*, and as peculiar

to the healthy murmur of respiration as the note of any musical instrument is peculiar to that instrument. We designate this quality vesicular, and introduce this name in the title of the normal respiration when we call it the "*normal vesicular murmur*." We find, also, that the expiratory sound is much shorter, less intense, lower in pitch than the inspiratory sound, and that it is devoid of that peculiar quality styled vesicular. Having thus ascertained the characters belonging to the normal vesicular resonance and the normal vesicular respiration, we are prepared to analyze and compare the abnormal modifications, and determine their distinctive characters. We will first direct attention to signs obtained by percussion, and next to those obtained by auscultation.

All will admit that, in the arrangement and naming of physical signs, the utmost simplification, compatible with clearness and completeness, is desirable. As regards the signs obtained by percussion, they may be reduced to four. Certainly this is bringing the subject into a small compass. Of these four signs, one is *flatness*. This sign has but a single character, and that is sufficiently distinctive, viz., absence of all resonance. When flatness exists, there is properly no sound, but only the noise produced by the contact of the fingers or of the artificial instruments which may be used as a percussor and pleximeter. Not one of the four signs obtained by percussion uniformly represents the same physical condition. Flatness may arise from liquid in the chest, from solidified lung, or a tumour. The clinical problem is to determine, by means of other signs, and by taking into view certain pathological laws, which of these conditions is present in any individual case.

Dulness is another of the four signs. The normal resonance is diminished, not lost. But this is not the only character. If the attention be limited to this character, there will be a liability to error, as we will illustrate presently. The pitch of the sound is raised. This character is invariable; dulness is always higher in pitch than the normal vesicular resonance. Attention to the pitch of the sound will often assist in determining the fact of dulness, and it will enable the explorer to recognize the existence of a slight degree of dulness which would otherwise escape observation. In percussing over the scapulæ, the pitch of the resonance is extremely useful in ascertaining whether a disparity exists or not. With due attention to pitch as well as intensity of sound, dulness behind is not infrequently detected, in cases of tuberculosis, when a disparity in front is not appreciable. In general terms, dulness represents physical conditions in which intra-thoracic solids are in abnormal proportion to air. This is usually the result of an absolute increase of solids, as in tuberculosis, pneumonia, etc., but it may be due to a decrease of air, as when more or less of the pulmonary lobules are collapsed.

Tympanitic resonance is a third sign. This term has been used with-

out having been rigorously defined, and, consequently, not a little confusion exists with regard to it. As a distinct sign, it is sufficiently definite and intelligible, if we call any resonance tympanitic which is not vesicular. Whenever the resonance is devoid of the vesicular quality, it is tympanitic. Whether the intensity be greater or less than that of the normal vesicular resonance, it is equally tympanitic. Absence of the vesicular quality, and in place thereof another quality of sound expressed by the word tympanitic, is, then, the most distinctive character of this sign. But it is always higher in pitch than the normal vesicular resonance. This is another character, and it is invariable. A tympanitic resonance may represent air in the pleural sac or pneumothorax. It may represent solidified lung, provided the bronchial tubes contain air enough to furnish a resonance; under these circumstances, whatever resonance exists must necessarily be tympanitic. It may represent air in a tuberculous cavity; and, lastly, it may represent gas in the hollow abdominal viscera situated near the chest—viz., the stomach and colon.

We may reckon as varieties of tympanitic resonance, the amphoric or musical percussion-sound sometimes obtained in pneumothorax, over solidified lung and over tuberculous cavities, and the *bruit de pot fêlé*, or cracked metal resonance, produced by percussion over tuberculous cavities, over solidified lung, and, in children, sometimes over the healthy chest. It is quite unnecessary to enumerate them as distinct signs.

The last of the four signs we have called *vesiculo-tympanitic resonance*. Its distinctive characters are expressed in the name. It is a resonance containing the vesicular and tympanitic qualities of sound, and the intensity is greater than that of the normal vesicular resonance. The vesicular quality is less than in the normal vesicular resonance, but the deficiency is more than supplied by the addition of the tympanitic sound. As regards pitch, it is always higher than the normal vesicular resonance. This is the modification of resonance in pulmonary or vesicular emphysema. The exaggerated resonance over lung floating on liquid when the chest is partially filled, is vesiculo-tympanitic, and so is the resonance over the healthy lobe of a lung when the remainder of the lung is solidified by pneumonia. It is incorrect to say that the resonance is tympanitic in these cases; it is not purely, but partially tympanitic, the vesicular quality being impaired but not altogether wanting.

An advantage of attention to the pitch of sound is shown in certain cases in which it is a question whether a disparity between the two sides of the chest be due to a vesiculo-tympanitic resonance on one side or to dulness on the other side. Instances like the following not infrequently occur: A patient has pulmonary symptoms which give rise to a suspicion of tubercle. On percussing the chest at the summit, a disparity is evident; the resonance is distinctly, perhaps notably, less on one side. If the examiner be guided by the mere fact of a less degree of resonance in determining the existence

of dulness, he is likely to decide, at once, that the latter sign exists on the side on which the sound is relatively less intense, and he, therefore, infers the existence of a tuberculous deposit. The disparity, however, may be due, not to dulness on one side, but to a vesiculo-tympanitic resonance on the opposite side. The case may be one of emphysema, either limited to one side, or, as is usual, more marked on one side than on the other. The importance in making a correct diagnosis, in such a case, is great. The error of attributing the disparity to dulness from a deposit of tubercle, may be avoided, without going beyond percussion, by a comparison of the pitch of the sound on the two sides. If the disparity be due to dulness, the pitch will be highest on the side on which the intensity of the resonance is less; if, on the other hand, the disparity be due to a vesiculo-tympanitic resonance, either limited to, or more marked on, the side on which the resonance is greater, the pitch will be higher on that side.

Another illustration may be cited of a similar application of the laws of the pitch of signs obtained by percussion. We have known patients with pleurisy, the affected side being partially filled with liquid effusion, to be examined and the disease set down as tubercle, the diagnosis being based on a marked disparity at the summit of the chest, as regards the resonance on percussion. The disparity is due to the fact that, over the lung floating on liquid in the chest, percussion elicits a vesiculo-tympanitic resonance. Now, it is true that a careful exploration of the whole chest should be sufficient to prevent such an error of diagnosis; but it may be avoided, even were the examination to be limited to the summit. The pitch of the sound will be higher on the side on which the greater resonance is found; whereas, were the disparity due to dulness on the side on which the resonance is less intense, the pitch would have been higher on that side.

We pass from this brief survey of the distinctive characters of pulmonary signs obtained by percussion, to enter upon a somewhat more extended consideration of the signs obtained by auscultation. And with regard to the latter, practical auscultators need not be told that, if we exclude the crepitant râle and metallic tinkling, the adventitious sounds, or râles, are of far less value than those signs which are considered as abnormal modifications of the normal vesicular murmur. Bronchial or tubular respiration, and the modification which we have called the broncho-vesicular respiration, are the most important of the respiratory signs. These signs represent different degrees of solidification of lung; and, in the vast majority of cases, the points to be settled by physical exploration are: is the normal vesicular murmur present, or is it replaced by the bronchial or broncho-vesicular modifications? and, if the latter modifications are present, the situation, the degree, and the extent of the solidification. These are the points involved in the diagnosis of tubercle, pneumonia, carcinoma; and in the

diagnosis of bronchitis, emphysema, laryngeal obstruction, by excluding the former solidifying affections.

The distinctive characters of the bronchial respiration embrace all the elements mentioned in the introductory remarks. The inspiratory sound differs from that in the normal vesicular respiration in pitch and quality. It is high, instead of low, in pitch; it is tubular, instead of vesicular, in quality. Its intensity is usually greater. The expiratory sound is higher and more intense than the inspiratory, instead of being lower and less intense, as in the normal vesicular murmur. Other characters relate to rhythm. The expiratory sound is not continuous with the inspiratory, but separated by a brief interval, and it is prolonged to the same, or even greater, length than the inspiratory sound. Here are at least six characters distinctive of the bronchial respiration, as contrasted with the normal vesicular murmur. They are invariable characters, that is, they are constantly present, provided the inspiratory and expiratory sounds are present. Clinical observation shows that both sounds are present in the vast majority of cases; but, if either be absent, sufficient characters remain to render the sign easy of recognition. The auscultator can never have any difficulty in distinguishing the sign, if he be familiar with its distinctive characters. Attention to intensity, pitch, quality, and rhythm, will prevent the error of confounding bronchial respiration and an intense vesicular murmur, an error which we have known to be committed by those who considered themselves adepts in the practice of auscultation.

By broncho-vesicular respiration we mean the modification which has been called *rude*, *rough*, or *harsh*. The use of these terms is evidence enough of the need of an analysis of this sign, with reference to distinctive characters based on differences in intensity, pitch, quality, and rhythm. Not only are the terms inadequate, conveying an indefinite idea of the sign, but they are incorrect. The sounds in the broncho-vesicular, or the bronchial respiration, cannot properly be said to have a quality of rudeness, roughness, or harshness. Identical sounds, produced within the heart and arteries, are distinguished as soft murmurs! Nor is it easy to appreciate the propriety of calling these *dry* sounds, after Laennec. That the use of these terms has contributed to render the practice of auscultation difficult of acquisition we cannot doubt. The term broncho-vesicular is intended to express the distinctive characters of the sign. What are these distinctive characters? An inspiratory sound, less vesicular in quality, and more tubular than in health, presenting a combination of the vesicular and tubular qualities, and raised in pitch in proportion as the tubular predominates over the vesicular quality; and an expiratory sound more or less prolonged, the intensity more or less increased, the pitch more or less raised, but these abnormal modifications not so marked as in the bronchial respiration. The broncho-vesicular respiration may present every degree of gradation between the normal vesicular murmur on the one hand, and the bronchial respiration

on the other hand. Any intermediate modification is embraced in this sign. It may approximate to the normal vesicular murmur; and then the inspiratory sound is slightly less vesicular, and higher in pitch, and the expiratory sound is slightly prolonged, intensified, and the pitch raised. Or it may approximate to the bronchial respiration, and then the inspiratory sound has very little vesicular quality; it is almost tubular, the pitch is correspondingly high, and the expiratory sounds proportionably prolonged, intense, and acute.¹ It approaches these extremes in proportion as the characters of the vesicular or bronchial respiration preponderate.

Mere variations of the broncho-vesicular respiration, as regards degree, denote corresponding variations, as regards the physical condition represented by the sign. As bronchial respiration represents complete or considerable solidification of lung, broncho-vesicular respiration denotes more or less solidification short of the amount requisite for the production of the bronchial respiration. If the solidification be slight, as, for example, from a small deposit of tubercle, the variation from the normal vesicular murmur will be but little; but if the solidification be greater, as, for example, when the deposit of tubercle is abundant, the variation will approach the bronchial respiration. A case of pneumonia, observed from its beginning to its termination in convalescence, furnishes an opportunity to study all the gradations of the broncho-vesicular respiration. When the exudation begins to solidify the affected lobe, the normal vesicular murmur begins to change, the vesicular quality of the inspiratory sound decreases, a slight tubular quality is apparent, the pitch is somewhat raised, and the expiratory sound is lengthened, intensified, and raised in pitch. As the exudation goes on, these changes become more marked until, the solidification being complete or considerable, the broncho-vesicular is merged in the bronchial respiration. After a time resolution commences. The bronchial respiration gives place to the broncho-vesicular whenever the inspiratory sound ceases to be purely tubular, and the vesicular quality is appreciable. As the resolution advances, the vesicular quality becomes more and more manifest in the inspiratory sound, the pitch is more and more lowered, the intensity is less, and the expiratory sound becomes less and less prolonged, intensified, and raised in pitch, until, finally, the broncho-vesicular respiration is merged into the normal vesicular murmur. This most important sign thus enables

¹ These characters are much more satisfactorily observed by means of Cammann's stethoscope, than with the ordinary cylinder or naked ear. The use of this instrument cannot be too highly recommended, but we would warn the reader that some practice is needed in order to appreciate its advantages. We meet with many persons who say that they have tried the instrument and were dissatisfied with it. The dissatisfaction proceeds from its having been only tried, and not used for some time. If used for some time, so that the ear becomes habituated to it, the auscultator will not be satisfied to dispense with it. This statement is based on its almost daily use for seven years.

the auscultator not only to know the existence of partial solidification, but to measure its amount.

It is especially in cases of tubercle that the broncho-vesicular respiration is of great value as regards diagnosis. And, with reference to the question whether a small tuberculous deposit exists or not, it is essential to take cognizance of the normal disparity which exists in front between the two sides, at the summit of the chest. The advantage of an analysis of the normal vesicular murmur is seen in the results of a comparison of the normal vesicular murmur on the two sides in the situation just stated. The disparity relates to intensity, pitch, quality, and rhythm. On the left side the murmur is more intense than on the right, the vesicular quality is more marked, and the pitch is lower; conversely, on the right side, the murmur is less intense, the vesicular quality less marked, and the pitch higher. The expiratory sound is oftener wanting on the left than on the right side, and is frequently longer on the right than on the left side. The practical importance of making proper allowance for these points of disparity in explorations, with reference to the existence, or otherwise, of a small deposit of tubercle, is obvious. Without making proper allowance for the disparity, the characters of the murmur at the right summit might be considered as evidence of a deposit in healthy persons. Practically, in cases in which a small deposit exists, the disparity sometimes embarrasses and sometimes assists us. In some cases, when it is a question whether there be a deposit at the right summit, we are embarrassed in judging whether the existing disparity be greater than the normal disparity. But in cases in which it is a question whether a deposit exists at the left summit, the normal disparity assists us, because, if we find the murmur on that side less intense, less vesicular, and higher in pitch, we know, at once, that we have broncho-vesicular respiration.

A prolonged expiratory sound constitutes, as we have seen, one of the characters of both bronchial and broncho-vesicular respiration. A prolonged expiratory sound sometimes exists without any appreciable inspiratory sound. Does the mere fact of the prolongation of the expiratory sound show that it belongs to either of these signs? Certainly not. A prolonged expiratory sound occurs in certain cases of emphysema, and it occurs not unfrequently in this affection when an inspiratory sound is not appreciable. Moreover, a prolonged expiratory sound, as already stated, is not unfrequently found in health at the summit of the chest, on the right side, especially in females. Attention to the pitch of this sound will always enable the auscultator to determine whether it represents, or not, solidification of lung. If it be high in pitch it denotes solidification, not less when it occurs without as with an inspiratory sound having the characters of the bronchial and broncho-vesicular respiration. But if the pitch be not raised it constitutes no evidence of solidification. The prolonged expiratory sound of

emphysema is not raised in pitch; the prolongation is simply due to the prolonged and forcible act of expiration in this affection.¹

We pass to consider the distinctive characters of *cavernous respiration*. We shall not be accused of temerity in saying that the description of this modification by Laennec is unsatisfactory, for so we believe it has been generally regarded. As his description is very brief, we quote his words: "*Ce bruit respiratoire a le même caractère que celui de la respiration bronchique: mais on sent évidemment que l'air pénètre dans une cavité, plus vaste que ne l'est celle des rameaux bronchiques; et l'orsqu'il peut exister quelques doutes à cet égard, d'autres phénomènes, donnés par la résonnance de la voix ou de la toux, lèvent promptement toute incertitude.*" To say that the cavernous respiration and the bronchial respiration are similar, must strike the mind as an improbability, in view of the wide difference in the two physical conditions. And, if similar, how is it possible to discriminate between these signs? Laennec says the cavernous respiration gives the idea of air coming from a larger space than the bronchial tubes. But Laennec would not certainly have admitted this as a proper mode of determining the physical conditions represented by signs. To decide from the idea which the sound suggests, is to give a loose rein to the imagination, and to run a great risk of running into error. It is evident that Laennec regarded the bronchial respiration as cavernous, whenever other signs (since shown to be fallacious), were considered as pointing to a cavity. Others who have attempted to describe cavernous respiration, since the time of Laennec, have not had much better success. The line of demarcation between cavernous and bronchial respiration has not been satisfactorily made out. The respiration pronounced cavernous by experienced auscultators, has, we believe, generally been bronchial, and this is almost invariably true of the cavernous respiration so readily and frequently discovered by those who have but a limited knowledge of the subject. Taking into account only the description by Laennec and others, we must think that they are more consistent who, with Skoda, deny the existence of such a sign as cavernous respiration.

We are, however, fully satisfied of the existence of cavernous respiration. We believe it has distinctive characters, by which it may be readily distinguished from bronchial respiration. We held in reserve a positive opinion as to the constancy of these characters, until we had accumulated evidence sufficient to appear to our mind conclusive. What are the distinctive characters? An inspiratory sound, non-vesicular, blowing, low in pitch, and an expiratory sound lower in pitch than the inspiratory. By the term blowing, applied to the inspiratory sound, we do not mean what Laennec expressed by this term (*respiration soufflante*), viz., the sensation

¹ A sibilant râle is liable to be mistaken by the young auscultator for a high pitched expiratory sound.

of air passing into and out of the ear of the auscultator. We mean simply, a non-vesicular sound, without the acuteness and tubular quality which characterize the bronchial breathing. The fact that a respiration with the characters just named, is heard within a circumscribed space, and generally surrounded by the bronchial respiration, is in confirmation of its being cavernous; but this is not the evidence on which we rest the correctness of the description. The only evidence adequate to establish the validity of this, or any other sign, is the concurrence, in a sufficient number of instances, of the phenomena during life, with the physical conditions as found after death. We claim to have accumulated ample evidence of this kind. We have many times pointed out the characters of this sign, in the living body, to medical classes, and subsequently exhibited the cavity in the dead body. Is it too much to ask others who are especially interested in physical exploration, that they will take the necessary pains to verify or disprove for themselves, the account which we have given of this sign?¹

Before leaving cavernous respiration, we would remark that this sign is not so easily found, even when cavities exist, as supposed by those who mistake for it the bronchial respiration. The latter is oftener heard over cavities than the cavernous respiration, because cavities are so often surrounded and covered by solidified lung; various circumstances must concur for the production and appreciation of cavernous respiration; the cavity must not be extremely small; it must be near the superficies of the lung; it must be free from liquid contents; it must collapse with expiration, and the bronchial tubes leading to it, together with the opening into it, must not be obstructed. It is from the non-concurrence of these circumstances, that it is not a very common sign. Its absence is no proof against the existence of a cavity, although, as we believe, when present, it invariably denotes a cavity. We would add that the cavernous and the bronchial

¹ Dr. Walshe, in the last edition of his valuable work on Diseases of the Lungs, says he fears there are many exceptions to the rule which we have stated, with regard to the pitch of the inspiratory and expiratory sound, in cavernous respiration. If there be a cavernous respiration, with certain distinctive characters, it would be reasonable to presume that it should invariably represent a cavity, and nothing else, as bronchial respiration always represents solidified lung (which we believe to be a fact). But whether there are exceptions to the rule or not, is to be determined by observation; and we venture to hope that, before another edition appears, the distinguished author will have submitted the sign to the *experimentum crucis*. We would add, let it be borne in mind that the cavity found after death, in a situation corresponding to that in which a bronchial respiration had been found during life, is not proof against the validity of the cavernous respiration which we have described. We have explained, in the paragraph which follows that above, why this should frequently occur. The proof of the validity of the sign is in always finding a cavity after death in a situation corresponding to that in which the characters of the cavernous respiration had been distinctly ascertained during life.

respiration may be combined, constituting what may be called broncho-cavernous respiration.

The musical intonation in amphoric respiration is in itself a sufficiently distinctive character. If pneumothorax do not exist, this sign may be considered as evidence of a pulmonary cavity. The expiratory sound in amphoric respiration, we believe to be generally, if not invariably, lower in pitch than the inspiratory sound. It has occurred to us to observe repeatedly, in connection with tuberculous cavities, an amphoric or musical inspiration, and an ordinary low-pitched, non-musical expiration.

The distinctive characters of the ordinary vocal signs, viz., *exaggerated vocal resonance*, *bronchophony*, *ægophony*, *pectoriloquy*, and *amphoric echo*, are few and simple. That bronchophony is often called pectoriloquy, and the latter spoken of as if it were a sign daily met with, is not because these two signs are not sufficiently distinct, in the one the *voice*, and in the other the *speech*, being transmitted to the ear. The elevation of the pitch of the sound in bronchophony, as contrasted with the normal vocal resonance, or simply exaggerated resonance, is one of the most distinctive of its characters. The voice is not only concentrated, and near the ear, but raised in pitch. The same is true of ægophony, the distinctive character of this sign being the superadded tremulousness. Here, too, it is not because the two signs, bronchophony and ægophony, are not distinctly defined, that the former is often called the latter. To determine precisely what is present, and not discover precisely what it is expected will be found, is a gift which all persons do not possess, even when the subjects of observation are so simple as the distinctly-defined signs obtained by auscultation.

There are certain vocal signs, in addition to those just named, which, for the most part, have been overlooked by auscultators, and which will be found to possess considerable importance. We allude to the sounds produced by the whispered voice. With the whispered voice at the summit of the chest, in front, especially over the bronchi, and in the interscapular space behind, a blowing sound is heard, in most healthy persons, which may be designated the *normal bronchial whisper*. The abnormal modifications of the normal bronchial whisper are correlative to certain respiratory signs, viz., bronchial, broncho-vesicular, and cavernous respiration. Solidification of lung, complete or considerable, gives rise to an intensification of the blowing sound in the upper part of the chest, where it is heard in health, and an intense sound is developed in situations where none is heard in health, for example, over the lower lobes, in cases of pneumonia. The pitch of the sound is acute. An intense, high-pitched sound, corresponding, as regards its significance, with ordinary bronchophony, may be called *whispering bronchophony*. It is not less reliable, as a sign of complete or considerable solidification of lung, than bronchophony, or the bronchial respiration, and certainly deserves a rank of equality with these signs. It adds to the proof of the existence of solidification, when asso-

ciated with its correlative signs, and may sometimes be available, when the latter are not.

Partial solidification of lung, the amount being insufficient to cause the bronchial or broncho-vesicular respiration, gives rise to a lesser degree of intensification of this blowing sound at the summit of the chest, and to a less intense sound developed in situations where none is heard in health. The pitch is proportionately lower. This corresponds with the broncho-vesicular respiration and exaggerated vocal resonance, and may be called an *exaggerated bronchial whisper*. It is chiefly at the summit of the chest (where the sound is strictly an exaggeration of that heard in health), in cases of a small tuberculous deposit, that this sign is valuable, and in many cases it is of no small value as a sign of tuberculosis.

Of the problems in diagnosis presented in practice, few are of greater importance than to determine, in certain cases, the existence, or otherwise, of a small deposit of tubercle. This problem is also, sometimes, one of the most difficult in physical diagnosis. Happily, there is a large number of signs more or less of which may concur to establish the diagnosis if tubercle exist. One of the signs often available is the exaggerated bronchial whisper. If the intensity and pitch of the sound exceed that of health, it is a most significant, if not conclusive, sign of a deposit. We advise practical auscultators not to omit to ascertain whether this sign be present in cases of suspected tuberculosis in which the evidence afforded by other signs is not complete; and, even if other signs do afford satisfactory evidence, this sign, with others, may be sought for to render assurance doubly sure.

In order to judge whether the bronchial whisper be exaggerated or not, it is needless to say the auscultator must be familiar with the sound as heard in health. And here, as with regard to the murmur of respiration on the two sides of the chest, at the summit, a disparity existing in health is to be taken into account. The normal bronchial whisper on the right side is louder than on the left side. It may be present on the right side and wanting on the left side. As regards intensity, it varies considerably in different healthy persons. The pitch, however, is higher on the left side. Consequently, a louder whisper on the left than on the right side, and a higher whisper on the right than on the left side, are morbid signs.

As there is a whispering sound correlative to the bronchial and broncho-vesicular respiration, so there is a sound correlative to cavernous respiration. This we may call the *cavernous whisper*. Compared with whispering bronchophony and the exaggerated bronchial whisper, it is a low-pitched sound. Lowness of pitch is its distinctive character; and this character is strikingly distinctive, being presented generally in contrast with the high-pitched sound, denoting solidified lung, surrounding the circumscribed space which corresponds to the size of the cavity. This cavernous sign, coexisting with cavernous respiration, serves to confirm the latter. It may be available

when the cavernous respiration is not satisfactorily made out. It is, therefore, a sign of some importance.

Whispering pectoriloquy is sufficiently distinct from whispering bronchophony, but it is practically of no great importance to make the distinction, for whispered words are as likely to be transmitted through solidified lung as through a cavity, if not more so. It is, therefore, of no more value as a cavernous sign than ordinary pectoriloquy, *i. e.*, transmission of sounds with the loud or oral voice.

The *amphoric whisper*, like amphoric respiration and amphoric echo, already noticed, is characterized by a musical intonation. This character is often more strongly marked with whispered words than with the respiration or words spoken with the loud or oral voice.

The validity of the sounds accompanying the whispered voice, as signs, of course, rests on clinical experience. Yet, after having settled the significance of the modifications of the expiratory sound in the different signs pertaining to the respiration, we may rationally determine the meaning of the different modifications of the whispered voice. A whisper involves a forced expiration. If the patient be requested to pronounce, slowly and distinctly, in a whispered voice, a series of numerals, with as much effort as is convenient, he performs with each word a separate, forcible expiratory act. The sound, in fact, is neither more nor less than an expiratory sound more intense than in ordinary breathing. For the same reason, therefore, that the expiratory sound is prolonged, intense, and high in pitch in bronchial respiration, a prolonged, intense, and high-pitched sound with the whispered voice (whispering bronchophony), denotes the same physical condition, *viz.*, complete or considerable solidification of lung.

So, also, a sound with the whispered voice less prolonged, intense, and not so high in pitch (exaggerated bronchial whisper), denotes small or moderate solidification, for the same reason that broncho-vesicular respiration represents this condition. And because the expiratory sound in cavernous respiration is low in pitch, a low-pitched sound with the whispered voice (cavernous whisper), proceeds, in like manner, from a cavity.

A few remarks only on the *Râles*. The distinctive characters of these are well defined and plain. Restricting the subdivisions of the dry bronchial râles to two, *viz.*, the sibilant and sonorous, and, of the moist bronchial or mucous râles, to three, *viz.*, the coarse, fine, and subcrepitant; the characters proper to each are sufficiently simple, and it would be of no practical utility to make the subdivisions more numerous. The single vesicular râle, *viz.*, the crepitant, is in general easily distinguished from the bronchial râle which approximates to it, *viz.*, the subcrepitant. The latter is a moist, bubbling sound, however fine it may be, and is liable to be heard in expiration, whereas the crepitant is a dry crackling sound, and heard only in inspiration. The crepitant and subcrepitant râles are not infrequently combined, and it is probably owing to this fact that some have supposed that

the former may occasionally be heard in expiration. We cannot pass from this notice of the crepitant râle, without referring to the explanation of it given in this Journal twenty years ago by the late Dr. E. A. Carr, of Canandaigua, N. Y. The reader will find the article in the No. for October, 1842. It has never been cordially received by our own countrymen, and appears to be little known on the other side of the Atlantic. We do not doubt that it is the correct view of the mechanism of this sign, and that it will ultimately be generally accepted as such. It is perfectly consistent with the distinctive characters of the sign, viz., the dryness and limitation to the inspiration; and this cannot be said of the usually received theory which attributes the sound to bubbling in the vesicles and capillary tubes. Dr. Carr has recently died. We wish he could have had the gratification of seeing his explanation adopted by the profession.

A single point with regard to the moist bronchial râles (mucous and subcrepitant). In pitch they correspond with the respiratory sound in the portion of lung whence they emanate. In other words, if they are associated with the bronchial respiration, they are high in pitch; they are less high in pitch if associated with broncho-vesicular respiration, and they are low-pitched if the respiratory murmur be unchanged. We may, therefore, infer from the pitch of these râles, what the respiratory sound would be in cases in which the râles are alone heard. This is a point sometimes of practical value in diagnosis.

ART. II.—*Some Remarks on Neuroma, with a brief Account of Three Cases of Anomalous Cutaneous Tumours in One Family.* By ALFRED HITCHCOCK, M. D., of Fitchburg, Mass.

THE term Neuroma, according to Dr. Smith, was first introduced by M. Odier, of Geneva, in 1803, and has since become established in medical nomenclature to designate a *tumour connected with a nerve*. The ancients described the disease somewhat obscurely under the names of *ganglions*, *nodes*, and other less specific terms. Some modern writers have either confounded it, or made it identical with *painful subcutaneous tubercle*. Continental pathologists have, in modern times, carefully studied the disease, and the results of their observations are condensed in the valuable work of Dr. Robert W. Smith, of Dublin, which was published about ten years ago. To that work I am indebted for many of the facts pertaining to the disease contained in this paper.

Neuromatous tumours are of spontaneous origin, the consequence of morbid process, or the result of wounds or injuries. If they are idiopathic, and but one tumour exists, it is usually painful; but if many tumours exist,

they are usually free from pain. The traumatic varieties of neuroma, whether single or many, are usually very painful. The tumours in the constitutional variety, which is to be considered in this paper, are usually oblong in shape, sometimes globular, and slightly pedunculated, and may vary in size from that of a millet-seed to that of an ostrich egg. They more usually exist upon the spinal nerves, but occasionally in the ganglionic system. The writer witnessed a dissection of the latter class, at La Charité, Paris, in 1852. In this case there was a multitude of tumours on the sympathetic nerve, from the size of a pea to that of an English walnut. The spinal nerves in the pelvis were also involved in the disease. The cutaneous nerves, I think, were entirely free from disease. A published report of this interesting case has not been found.

In general, the tumours are *solid*, with an *elastic feel*, and sometimes are said to be composed of a cyst filled with fluid. They are of very slow growth, and are slightly movable, especially laterally. Those formed on minute cutaneous nerves will disappear in the areolar tissue by firm pressure. The skin is not discolored over them, neither does it adhere to them, unless friction, or pressure, or other cause, has interfered with their natural development. Inflammation, suppuration, or absorption, seldom occurs in them. The true neuroma is generally regarded by pathologists as a disease of a *benign character*. Some, however, regard neuromatous tumours as cancerous; and it is unquestionably true that malignant tumours are occasionally found involving trunks of nerves. Several continental pathologists maintain that neuroma is a malignant disease; while Dr. Smith, in his valuable memoir, presents very strong reasons for its benign character. This question can hardly be said yet to be finally settled—certainly not more satisfactorily settled than with a pretty large variety of tumours, that are developed in other tissues of the body. The truth on this subject may yet be found in a solution of the question whether or not benign tumours ever degenerate into malignant. Mr. Abernethy, as is well known, favoured the doctrine of such transformation. Professors Gluge, of Germany, and Syme, of Edinburgh, at present maintain the doctrine of the malignant degeneration of certain recurrent tumours. Mr. Paget also coincides in this view, and very aptly remarks that “recurring fibroid tumours assume more and more malignant features the oftener they recur.” And he also adds: “Whatever be the truth concerning the supposed transformation of an innocent into a malignant, morbid growth, I think it can hardly be doubted that, in the case of some recurring growths, the successively later growths acquire more and more of the character of thoroughly malignant disease.” He also expresses (p. 394) considerable doubt whether the so-called painful subcutaneous tubercle “is identical with the fibro-cellular neuroma or not.” According to Rokitsansky (vol. iii. p. 347), neuroma should be ranked with the fibroid structures. He describes it as non-malignant, and says, “that with the exception of cancer, neuroma is the most frequent adventitious

growth which occurs in the peripheral nervous system. In quantity, they may exist from one to countless numbers. In the latter case it constitutes a very *general disease*, as to the cause of which we are *still in the dark*. The size of the tumours bears no direct proportion to the thickness of the nerve on which it is formed; for, in point of fact, it has been noticed that those tumours which are situated on small branches, are relatively much larger than those which occupy the thick trunk of a nerve." He also says (vol. i. p. 213), "Medullary carcinoma has some sort of affinity to the medulla of the nervous system; this is evinced by the fact that in the eyeball this disease always springs from the retina or optic nerve, and nerves speedily perish in the range of medullary tumours."

Several writers have observed mental imbecility, idiocy, or cretinism, in persons afflicted with neuroma as a general disease. In the three cases of anomalous cutaneous tumours, in the Clark family, described in this paper, although a tolerable degree of intelligence existed, and a desire to act strictly conscientious, yet there is a very obvious imbecility and vacillation of the mental and moral powers. The expression of their countenances strongly corroborates this opinion, and justly conveys the impression that they are persons of weak intellect.

CASE 1. *May 4th, 1860.* Mrs. Elizabeth Clark, wife of Peter Clark, deceased, was the daughter of Samuel and Abigail Brown, of Worcester, Massachusetts, where she was born, Oct. 3, 1779. Her parents "kept tavern," and in June preceding her birth, the weather being very hot, according to family tradition, her mother "melted herself." From this time she was sick, and kept her bed till the birth of Elizabeth. She was a tolerably healthy child, was occasionally troubled with a "rash," till thirty years of age, when the tumours in the skin began to appear. They have gradually increased in number, and some of them very slowly in size; have never been painful, except from injury, and they have always retained the colour of the skin. In shape they are variously *oval*, *globular*, slightly *pedunculated*, or *merely* papular, *oval disks*. Some are hard like scirrhus, some have a firm, elastic feel, and some are soft, and readily disappear by pressure under the skin. None have the appearance of melanosis.

At this time the tumours cover the whole body—are most abundant on face, neck, thorax, and arms. In size they vary from that of a pin's head to that of a hickory-nut. They number many hundreds, too many, in fact, to think of counting them. The tumours in her case, as well as in the daughter and son, have multiplied pretty steadily with advancing age.

The writer has procured photographs of all these cases for preservation.

Mrs. Clark is now nearly 81 years of age, is tolerably well, and her usual mental power is quite unimpaired. She gives the foregoing facts concerning her own history, and also states that her parents were healthy, without tumours, or *cancers*, or eruptions of any kind; and that none

existed among their relatives, or among her own brothers or sisters, there being ten children in the family.

Mrs. Clark had seven children. Several of them died early of acute diseases. Only two of the children, Samuel B. and Elizabeth D., exhibited the cutaneous tumours like the mother. Her husband died many years ago of acute disease. He had brothers and cousins who died of cancer.

CASE 2. In the case of the daughter, Elizabeth D. Clark, aged 54, the tumours began to appear at 10 years of age. One, near the clavicle, attained the size of a hen's egg, and was removed, when she was 21, by Dr. Torrey, of Windsor, Vermont. Another small tumour, on the lip, was removed, a few years ago, by the family physician, Dr. W. H. Bigelow, of Bolton. Neither of these tumours have ever returned, although she thinks the tumours in other parts of the body increased in number more rapidly after their removal.

CASE 3. Samuel B. Clark, aged 46; single; factory operative, Bolton, Mass. About the first of June, 1856, consulted me for a painful tumour of the right arm. He was thin in flesh, pale, seemed timid, dejected, and almost childish when conversed with about himself. The history of the tumour he related as follows: About twenty-two or twenty-three years ago, he discovered a small, movable tumour on the right arm, just above the internal condyle of the humerus. This increased very slowly for twenty years, and did not interfere with the motions of the arm; was not sensitive or painful, unless compressed, or the arm used violently, when numbness, or pricking sensations, or acute pain, would extend to the fingers. About two years ago, the tumour began to increase in size much more rapidly, and the pain and discomfort were correspondingly increased. For nearly a year past he has been unable to labour, in consequence of the size and painful character of the tumour. At present, the tumour measures $6\frac{1}{2}$ inches in its long, by $3\frac{1}{2}$ in the short diameter, and is nearly a perfect ovoid. The lower extremity seems pretty firmly fixed at the internal condyle of the humerus, and the long axis extends in the direction of the axilla. The whole tumour is solid, elastic, smooth, movable, especially laterally, and evidently without adhesion to integument or bone. The skin is of natural colour and sensibility, while pretty firm manipulation of the tumour is productive of great pain, chiefly in the parts below supplied by the ulnar nerve. The tumour is regarded as encysted fibro-plastic, requiring removal to escape the great pain and loss of use of the arm, caused by its rapidly increasing size and by the supposed *mechanical compression of the ulnar nerve*.

In this opinion Drs. Marshall, Wellman, and Cummings, of Fitchburg, concurred, and on the 16th of June, 1856, rendered valuable assistance in the operation for its removal. By a longitudinal incision the integuments were easily detached from the investing capsule of the tumour, and when carefully attempting to enucleate it, without injury to the ulnar nerve

(which was expected to be found between the tumour and bone), it was discovered to be a tumour of *that nerve*. The ulnar nerve, in fact, appeared to be the axis of the spheroid, and at either pole was enlarged, the lower to three, and the upper to five lines in diameter; the capsule of the tumour was evidently composed of the neurilemma. The trunk of the nerve, from above, was spread out into a vast number of flattened fibres, partly dipping into the tumour, but chiefly running in curved lines, on its convex surface, like the network on a balloon, and subdividing till scarcely visible to the naked eye; and, at the lower part of the tumour, converging in more and more distinct lines to form the nervous trunk, where it passes over the groove of the internal condyle of the humerus. To save the nerve was found impossible, and it was accordingly divided, first above and afterwards below, and, there being no adhesions to the bone, the tumour was readily separated from its bed. Some of the muscles were displaced and atrophied, by mechanical pressure, but not involved in the disease. Only one artery required ligature; the tumour was not attached to the skin or bone. With the exception of a secondary hemorrhage, on the eleventh day, which was readily controlled by compression, the wound healed kindly, partly by adhesions, and partly by granulations, and with paralysis of the ulnar portion of the forearm, he returned to his home, in five weeks, calling himself "well."

It should be here stated that the tumours in the skin were observed at the time of the removal of the large tumour of the ulnar nerve. These cutaneous tumours were firmer and evidently more prominent than when he subsequently entered the hospital, in 1858, as described by the record.

The tumor weighed two pounds, avoirdupois; oval, smooth, solid, very elastic, and covered with an investing capsule, which could not be easily detached; the cut surfaces immediately presented a slightly convex appearance, and on firm compression several smaller convex disks appeared on the general convexity of the cut surface. The colour was generally of a grayish, glistening white, in spots inclining to yellow, or a bluish, translucent white; appears succulent, and is partially friable in spots, yet is pretty firmly coherent by apparently fibrous or condensed areolar tissue. Dr. Wellman and myself examined the tumour microscopically, and failed to find evidence of its encephaloid character, but did find evidence of its fibro-plastic structure. Sections of the tumour were sent immediately to different microscopists. A portion sent to my brother, Dr. Homer O. Hitchcock, House-Surgeon at Bellevue Hospital, was examined by himself, by Drs. Alonzo Clark and J. C. Dalton, Jr., of New York, who concurred in opinion that it was of the fibro-plastic character, and without cancer-cells.

The following extracts of letters, from their distinguished authors, express their several views of the specimens from this tumour which were sent for their examination.

Of a specimen sent in alcohol to Prof. E. R. Peaslee, then at Hanover, N. H., he writes as follows:—

JULY 9, 1856.

I would not like to pronounce unqualifiedly on the character of a tumour in the circumstances, since the action of the alcohol must somewhat change the minute structure. In the first place, I do not find any reason for believing the growth *encephaloid*; second, it lies in my own estimation between neuroma and a modification of the ordinary *fibrous tumour*; and as I fail to find anything characteristic of the former, I should be obliged, from the present specimen, and in its present condition, to think it the latter, of which it seems to me to present the characters. I should, however, hesitate to give a decided opinion in the circumstances.

Of a specimen sent to Dr. J. B. S. Jackson, of Boston, the day after its removal, he writes as follows:—

BOSTON, June 20th, 1856.

Dr. HITCHCOCK—*Dear Sir*: I received your specimen in good condition, and it has been examined by several others as well as by myself. No one of us, I believe, agrees in calling it *neuroma*; my own opinion was decidedly against that view of the case, and having had an opportunity to examine Dr. Smith's specimens and his plates side by side when I was in Dublin, I came to the conclusion that a very considerable variety of structures were described under that name; and that it might be very easy to confound neuromatous with tumours that simply involved or pressed upon the nerves. The light-coloured portion I thought resembled what has been described as the fibro-plastic, and the yellowish opaque I supposed to be the result of a secondary action, probably inflammatory. The appearances of "*encephaloid*" vary much in different cases and in different parts of the same mass.

The light-coloured portion of this tumour I should say varied very much in its gross appearance from an average *encephaloid*; far more I think than Dr. Bigelow would make it judging from his note, which, as you will see by the date, I have just received. I expected, therefore, that it would be found microscopically to possess the usual fibro-plastic appearances, and I am surprised to find that there is so much of the *encephaloid* character. In regard to the general character of the disease practically I considered it when I first saw the specimen, and after reading your history of the case, *to be cancer*, though not the most common form. I had little or no doubt that it would return and sooner or later destroy the patient, and I presume that my friends here agree with that first impression. The pure fibro-plastic tumour often enough returns and is fatal; but this case seems to have been a step towards *encephaloid*.

Dr. Jackson placed the specimen in the hands of Dr. H. J. Bigelow, of Boston, who expressed the following opinion.

JUNE 20, 1856.

Dear Sir: The tumour of which you sent me a portion of uniform structure, flat on section, tender and of a bluish translucent tint, although

it resembles encephaloid in these respects, does not present the most frequent microscopic appearance of that disease; the cells having a tendency to excessive elongation, some consisting of an attenuated long nucleus, with at each end a long fibre; others elongated narrow bodies with parallel sides and blunt ends, others again merely ovoid and elongated nuclei; but nuclei and nucleoli all small. Yet these appearances correspond sufficiently with some other cases of undoubted cancer, and also with one of Paget's figures. I should consider also that the universal occurrence of these masses in the same patient was conclusive as respects cancer, if indeed they are not some also melanotic.

Dr. C. Ellis, of Boston, writes as follows to Dr. Jackson: "The tumour from the arm was examined by Dr. Shaw and myself. We both found round or oval granular nuclei; the nucleoli in which were comparatively small; also cells more or less elongated containing the same nuclei above described. Dr. Shaw was inclined to call the disease fibro-plastic. I do not deny that it might be so-called, but would rather describe the appearance of the cells than give them a name."

The following is the record of the case at the Massachusetts General Hospital.

1858. Samuel B. Clark, aged 47; single; labourer; Bolton. Encephaloid tumour of arm. One year.

January 6. Family scrofulous, himself generally healthy, twenty-four years ago discovered a small movable bunch on right arm just above bend of elbow. This increased very slowly, at times seeming to remain stationary and not interfering with the motions of the arm. At the end of twenty years it began to rapidly increase, extending over to back of arm, retaining, however, its mobility, and not causing him any pain except after severe exertion; when the pain was of a dull aching character; never lancinating. It was removed a year ago last June by a surgeon of Fitchburg. It weighed two pounds; the wounds healed kindly. Last February the disease began to return, commencing, as previously, in the form of a small lump about two inches above internal condyle of humerus; growing rapidly, extending in either direction so as to completely encircle the arm, and becoming the seat of severe lancinating pains; especially distressing at night. The growth is developed principally to the inside of arm, where a large spherical mass, hard and immovable, juts out; is continued round to outside of arm, where, however, the convexity is less marked, and extends upwards; all the while diminishing in circumference till the hardness disappears about five inches above elbow. In the axilla a firm hard cord can be traced downwards into the mass where it disappears. Pressure along this is productive of great pain. The circumference of the arm over the greatest convexity of the tumour is twenty inches. The integument covering the whole mass is reddened and adherent, large veins anastomose over its surface, one of which was ruptured about a week ago and now bleeds freely

whenever compression is removed. Right forearm is cold; the muscles do not appear to be wasted. Hand droops; fingers are permanently contracted. Has been unable to use his hand for a month. Pulsation in radical artery feeble. A curious eruption of the skin also strikes the eye; most pronounced upon the back; sparse upon the chest and belly; looking like small pediculated tumours of the skin; wrinkled, flaccid and flabby, very soft, receding on the slightest pressure through the skin into the cellular tissue. These are the largest, a dozen or more in number of the size of a large green pea, but the earliest stage of this eruption is seen to be a minute papule sparsely disseminated over the trunk and on the forehead, and it is to be seen in intermediate stages. A few of the largest of these little tumours existed upon the amputated arm, and proved, on dissection, to lie in the cellular tissue, of a soft white material though not easily torn, and to consist under the microscope of elongated nuclei, and cells identical with those found in the tumour.

Amputation at the shoulder-joint was performed by Dr. Bigelow with an upper flap by transfixion in the usual manner, January 9, 1858.

The tumour, on dissection, proved to lie beneath the muscles, being about eight inches in diameter, ovoid. The musculo-spiral nerve lay in a groove upon its surface enlarged but not adherent. The radial nerve was also detached by dissection from the surface of the tumour; but the ulnar nerve entered the tumour at its upper extremity and was immediately lost in its substance. Before disappearing it bulged like a sparrow's egg, this knob being eneysted beneath the surface of the tumour, but readily peeling from it. Its point of emergence was entirely obscured by the adherent cicatricial and diseased tissue at the lower extremity of the tumour at the point of the old operation. The tumour was not adherent to the bone. Upon section it presented, on the whole, an encephaloid character, the centre seemingly more succulent, vascular, translucent, and mottled; the periphery more opaque, white, and lobulated with lymph, friable to the thumb without difficulty; the centre tougher. Microscopically the tumour consisted mostly of elongated nuclei, containing one or more nucleoli about one-fourth the width of a blood-corpuscle and from two to four times as long, often bifid at the extremities, the nucleoli rather small than large, some tendency to fibroid tissue.

Omitting the daily record till April 22d, 1858, we find "Less pain than at time of last record, shoulder still quite sensitive, discharged well."

From Dr. W. H. Bigelow, of Bolton, I received the following terminal facts in Samuel B. Clark's case. He remained in the hospital till April 22, 1858, when he returned to Bolton, with the stump not healed but hard at one point. This rapidly increased in size and hardness and finally became raw and bleeding. He wasted in flesh and died August 17, 1858. (A post-mortem examination was not made.)

Several important inquiries naturally arise from a review of these cases.

1st. Was Samuel B. Clark's tumour of the ulnar nerve a true neuroma?

2d. Is neuroma naturally *benign*, and does it sometimes degenerate into malignant disease?

3d. The small cutaneous tumours having been found by several observers clinically and microscopically identical with medullary cancer, how is it that such a crop of that disease has grown so inoffensively 30, 40, and 50 years on these three persons?

4th. Is it not possible or even probable that these tumours originate in minute cutaneous nerves, by reason of which their malignant tendency is modified or controlled, perhaps at the expense of intellect or some other manifestation of nerve power?

These inquiries open a field for research where the annals of clinical surgery and pathology afford but little information. With the hope of pursuing this inquiry farther, I invoke the aid of the readers and contributors of this Journal to elucidate this rare and obscure disease.

ART. III.—*Inversion of the Hairs of the Labia Pudenda.* By C. D.

MEIGS, M. D., Emeritus Prof. of Midwifery in Jefferson Medical College.
In a letter to the Editor.

MY DEAR SIR: Since I saw you yesterday I have found, at page 95 of my "Letters to the Class," 4th edition, the relation of a case of pruritus vulvæ closely resembling that of our patient, Mrs. ———, and which was the subject of our conference.

The late Dr. ——— had for some time had charge of the young lady, aged about 20 years, and suffering greatly from continual pruritus and heat of the vulva. Finding himself baffled in his trials of cures, he at length asked leave to make a physical diagnosis; and you may infer as to the severity of the young lady's distress that could induce her to yield assent to so trying a demand.

The inspection of the parts did not, however, provide for the Doctor means of cure more efficient than the preceding ones; so that, the various washes and even the application of nitrate of silver having failed, he gave it over to me.

I was much surprised, on inquiry, to find the margins of each of the labia studded with long, straight, and stiff hairs, just like eyelashes, all of them directed inwards, and so, constantly teasing, irritating and vexing the mucous body of the interior, and producing a redness or florid tint of the membrane, with heat and the intolerable itching of which she so long had complained. I was struck with the analogy of the situation to that of the conjunctiva in those cases of conjunctivitis which you have often found to

depend upon inversion of eyelashes or trichiasis. It was a case of real trichiasis, not before described, and probably not before noticed. I at least had not met with any such notice in the books.

I directed the offending hairs to be gradually eradicated by tweezers, which the lady's nurse accomplished after some days, and the patient was thus cured of an *incurable disorder*.

Now, my dear sir, our patient is in precisely a similar condition, both as to the distress and the cause of that distress; and I confidently expect that if she will accomplish the eradication of the offending lashes, "whose name is legion," she will find herself delivered from the annoyance.

You, who know as well as I do, how obstinate and how intractable are many of the cases of pruritus, will do, I think, a service to many distressed people, and shed a little beam of light on the path of many a bewildered colleague if your widely known journal should assist to spread this little item of useful knowledge where my work has not been able to extend it.

I am, dear Doctor,

With the truest esteem,

Your obliged servant,

CH. D. MEIGS.

710 Walnut St., Jan. 28, 1862.

ART. IV.—*Induction of Premature Labour*. By C. D. MEIGS, M. D.,
Emeritus Prof. of Midwifery in Jefferson Medical College. In a letter
to the Editor.

DEAR SIR: I am not rarely consulted by medical gentlemen at a distance on the subject of premature labour and on forced abortion supposed to be rendered necessary by an ascertained deformity of the pelvis. Having had two such letters to answer this week, I considered that it might comport with the purposes of your excellent journal to say in it what appears to me to be the most advisable method in such cases. If you should publish this note it might not only prove acceptable to some of your readers, but it would save my time, in the way of answering inquiries.

Dr. Karl Braun, of Vienna, proposed, a few years ago, to open the os uteri by means of what he called a COLPEURYNTER, which is a small delicate bag or bladder composed of vulcanized rubber, to which is attached a syringe and a stop. This bladder, not bigger than a walnut, if introduced within the vagina, may be distended by means of the syringe with tepid water or air. It may be inflated or distended so as to become equal in size to a small foetal head, and if the distension be gradually and very slowly effected it will not necessarily produce any distressing or painful sensation.

Now, as the uterine extremity of the vagina arises from the outer circumference of the cervix uteri, it is clear that such a distension as above supposed could not fail after due time to draw the walls of the cervical canal outwards, and so diminish the antagonism of the cervix and os uteri to that of the fundus and corpus uteri. This very condition of lessened resistance is all that is requisite in the case, because, as soon as the power of the fundus and body becomes preponderant, it will begin to force the ovum downwards, and at length, after dilating the cervix and os, expel it. I apprehend the method to be in all cases infallible—the condition being that the colpeurysis shall be properly effected.

To bring on a forced abortion in labour by the use of the stilette, or by injecting different medicinal articles or gases into the gravid womb, appears to me to be an encroachment, by medical people, upon those rules of art within whose sacred pale we may be held blameless, whereas, we are not without blame when we transcend those barriers that are so clearly defined in our collegiate diplomas. Witness the instant death that recently occurred at Edinburgh, from injecting carbonic acid into the uterus, as related in your last number! But to gently remove the retaining power of the os and cervix by a moderate and reasonable colpeurysis, is really to do no violence to any tissue, the operation being merely to suspend an antagonistic force, thus rendering the method of colpeurysis the simplest and safest possible, and certainly unfailing in success.

Inasmuch as operations performed for the induction of premature labour, and of abortion, are not without risk to the patient; and as it is well known that there are wretches who are so abandoned as to desecrate the profession of medicine, and spurn their own honor in the low calling *teneros avellere fetus*, I conclude that no regular and reputable member of the body will ever consent to institute such operations as this I propose, without the consent of a proper medical consultation: this is a matter of such great import to us all, that I consider it to be incumbent on the American Medical Association to take such order upon it as their wisdom may suggest. To lose a patient under any circumstances, is a source of grief to the practitioner; but to lose one subjected, without consultation, to the operation in question, can only be fitly denoted as a disaster. Our diplomas endow us with authority to practise within the rules of an art—and it ought to be enacted as a rule of practice not to do these things without consent of a consultation. Such a rule would probably restrain much looseness of conduct on the part of some of the brethren; and might go even so far as to improve their morals, as is the admitted tendency of all salutary laws. I trust that you, Mr. Editor, who are a leader in things practical and æsthetical in our calling, will readily agree with me that it is neither safe nor decent for any single physician to order and perform one of these operations. Such sentiments, if known to be held by your great and powerful press, would do more good, perhaps, in the way of purging our brotherhood

from these defilements, than half a dozen convictions and sentencings by the law courts.

Though I have already drawn out this note to a greater length than I designed, I ought not to omit the injunction of deferring the operation until after the period during which the ovum is covered up completely within its capsule called the decidua. Now, it is known that the whole ovum escapes from its deciduous investment or capsule at the one hundred and fifth day, or thereabout. If one would force on an abortion before that date, the deciduous capsule, which consists of the tubular glandular mucous membrane of the womb, must inevitably be ruptured or wounded, which is equal to a wound of the womb itself; but, after three and a half months the ovum, which is at that period wholly escaped from the decidua-capsule, may reasonably be expected by means of the colpeuryxis to be expelled whole and unbroken, in which case the risk to the woman is much diminished, not only because the entire product of the conception is thus eliminated, but also because no needless and hazardous violence is done to the membrana decidua.

I am, my dear sir,

With the sincerest regard,

Your friend and servant,

CH. D. MEIGS.

ART. V.—*On the Treatment of Variola.* By CHRISTOPHER J. CLEBORNE, M. D., Ass. Surg. U. S. N.

DURING the early part of 1861, having a number of cases of smallpox under my care, I had a fair opportunity of testing the efficacy of the general plan of treatment recommended in this paper. Most of the cases occurred in the southern portion of the city, and amongst the poorest class of people, the greater number of whom, owing to the present unfortunate troubles of the country, were unable to obtain employment, and in consequence lived in the greatest state of destitution. I mention this fact to show that in many instances the chances of recovery were considerably lessened, and even after the disease had run its course, convalescence was necessarily retarded from a want of proper food and attention. Notwithstanding these disadvantages, out of forty-three cases of confluent variola treated by the administration internally of the chlorate of potassa, and the local application of the plasma potassii iodidi, but three cases terminated fatally. It may be well to state here, that of thirty seven cases of which the writer took notes, six had been previously vaccinated, and the scars were still visible.

1 had been vaccinated 23 years previously.

1	"	"	15	"	"
1	"	"	9	"	"
2	"	"	5	"	"
1	"	"	2	"	"

31 were unvaccinated.

This table proves, to some extent, that vaccination is not in all cases a certain protection against the disease, and that its protective influence cannot be depended upon for any specified time.

In two instances the disease was ushered in by convulsions; another case presented some of the symptoms of meningitis, which ceased immediately upon the appearance of the eruption. One patient (a female) complained of excruciating pain in the course of the spine, a complete loss of voice, and severe circumorbital pain, accompanied by excessive sensitiveness of the eyes, when exposed to light. The rest of the cases presented the usual premonitory symptoms of the disease.

The writer did not meet with a single case of variolous ophthalmia, but observed that when the efflorescence was of a dark or livid colour, accumulations of pseudo-membranous matter in the mouth and fauces, painful furuncles, and obstinate diarrhœas, were more apt to occur in the course of the disease. It has been said, that the effect of the contagion of variola does not depend upon the particular grade of the communicating case, and the truth of this observation was exemplified in two cases of the confluent form, both of which were contracted from a mild case of diffluent variola in the stage of convalescence.

In one of the vaccinated cases, notwithstanding the copious eruption, no secondary fever appeared, and the disease ran its full course in thirteen days; afterwards a severe diarrhœa set in which finally yielded to the liquor ferri pernitratidis in the usual dose.

I will now pass to the consideration of the various topical agents, which have heretofore been found to answer best the purpose for which they were proposed, and will then briefly state the principal objections to their use.

The Arabian physicians adopted the plan, of opening the pustules with a finely pointed instrument, squeezing out their liquid contents, and then washing them with warm milk and water or some anodyne lotion; this method though tedious, was very successful. Dr. G. B. Wood has suggested the opening of each vesicle by means of a sharp probe or lancet, and then touching them with a finely pointed stick of nitrate of silver. (*Practice of Med.*, vol. i. p. 402.) Bretonneau and Serres recommend the nitrate of silver in solution, applied over the whole surface, but it has been found that suppuration continues under the blackened cuticle, allowing the ulcerative action of the confined matter to continue undisturbed. This is the great objection to the use of collodion, or other applications of a similar nature. Involving the pustules in olive oil, or honey, and covering

them with small coloured glass cups, so as to exclude air and light (Serres, *L'Union Médicale*, 1848) has not been found to answer in practice. Dr. Bennett, of Edinburgh, has used calamine and olive oil, with some success. Iodine was first used for this purpose, by Crawford, of Montreal, and has been found useful in the hands of many practitioners. Broussais speaks very highly of the use of blisters, and more recently Mr. Startin, of London, succeeded in producing abortion of the pustules, by touching them with acetum cantharidis (L. Ph.) until a blister was produced. The use of mercurial ointment for the purpose of producing a resolution of the papulæ, or to abort the pustules, was first recommended by Briquet, and has been found more effectual perhaps than anything else; many objections are made to its use. The danger of salivation when used for any length of time, its unsightly appearance, the difficulty found in removing the unctuous matter from the surface of the skin and the soiling of the linen and bedclothes, thus adding to the discomfort of the patient, have caused it to be superseded by glycerin, which has been found less disagreeable, and quite as effectual in its application. I need hardly say, that similar objections may be made to the use of sulphur and other ointments, while the pain arising from the application of the nitrate of silver or blisters will prevent their being used in most cases for this purpose.¹

It is now, I believe, conceded by all dermatologists, that the cause of pitting in smallpox is due to the disintegration of the derma or true skin, by the corrosive action of the virus contained within the pustule, or, more properly speaking, to that portion of matter inclosed in a small sac, in the centre of the pustule. The writer is inclined to believe, from observation, that this lesser sac is formed from the disk of whitish pseudo-membranous matter found on the upper surface of the derma, and which in the earlier stages of the eruption is adherent to the inner surface of the cuticle, and less firmly attached to the cutis beneath. During the progress of the eruption, a clear albuminous fluid is exuded, which in a short time becomes turbid, and is finally converted into pus. This liquor gradually separates the disk from the true skin, and from its attachment to the epiderma, after which the edges of the disk unite together, or more frequently to the inner surface of the cuticle, inclosing within the sac thus formed a purulent matter, arranged in minute cells like an orange. This matter being more acrid than the fluid by which it is surrounded, is said to be the cause of ulceration of the tissues, or pitting. To obviate the effects produced by this acrid matter, we must endeavour to prevent maturation of the pustules, or by some means get rid of their contents, before ulcerative action takes place.

The resolvent properties of the iodide of potassium suggested it to the

¹ [For some interesting remarks on various modes of preventing pitting in smallpox, see preceding No. of the Journal, p. 229.—EDITOR.]

writer as an agent from which might be derived all the advantages heretofore obtained from the use of mercury, iodine, or blisters. He has been much pleased with his success in the use of this remedy as an external application, and is convinced of its value from observation and experience.

In recommending the following formula to the notice of the profession the writer begs to claim for it a fair and impartial trial; having found it successful in his own practice, he is the more confident of its good effects and success in the hands of more skillful and experienced practitioners: R. Potassii iodidi ℥xij; maranta ℥j and ℥j; glycerin f℥ij; ol. bergamii gtt. xl. Divide the glycerin into three equal parts; in the first portion dissolve the iodide of potassium, using heat if necessary, and add the oil of bergamot; put the second portion of the glycerin into a porcelain capsule and heat it over a water bath; then mix with the remaining portion of the glycerin the arrowroot, triturate well in a glass mortar, and gradually add it to the boiling glycerin while cooling; it should be stirred with a glass rod continually and the solution of iodide of potassium added by degrees, until the mixture becomes of a transparent appearance and of the consistence of jelly.

The plasma may be applied by means of a camel's-hair pencil, of the size usually sold as throat brushes. As soon as the eruption makes its appearance it should be used, and repeated applications made throughout the day and night. A mask of oiled silk may be placed over the face, but is not by any means necessary. The face may be cleansed when the pustules burst by sponging with tepid water; it would be well to do this frequently for the sake of cleanliness, the comfort of the patient, and the success of the application.

The strength of the preparation should be increased or decreased as the practitioner sees fit, and according to the circumstances of the case, the age and tenderness of the skin being at all times considered. To the discutient properties of the iodide of potassium may be attributed its effect in producing a resolution of numbers of the indurated papulæ, while at the same time it checks the advance of others into the vesicular stage, its good effects upon the eruption in the advanced stages is due to its producing a partial solution of the epiderma, so that when the pustule is fully formed, the pus contained therein can easily burst through the softened cuticle, and by this means the ulcerative action of the virus on the cutis vera is effectually prevented.

I will now proceed to make a few remarks upon the internal administration of the chlorate of potassa in the treatment of variola.

On discovering the nature of the disease, I commence the treatment by giving the powdered chlorate of potassa in doses of one to two drachms every two hours, mixed with honey, or in combination with the effervescent draught or neutral mixture. The writer is aware that the use of heroic doses of this salt may be considered by some as unnecessary and likely to

produce injurious consequences, especially when continued for a length of time, but this has not been his experience; on the contrary, he has given it in half ounce doses frequently repeated, and always with the happiest effect. In fact, experience daily proves to us that in order to obtain the proper effects of nearly all medicines, they must be administered in much larger doses than is at present done.

During the whole course of the disease I continue the use of the chlorate of potassa, but decrease the dose on the return of the secondary fever. I find that it answers all indications, and besides its refrigerant effects it acts also as a tonic, giving new vigour to the enfeebled system.

The painful excoriation and plugging up of the nostrils of young infants may be remedied to some extent by an early and daily use of a solution of tannin in glycerin, applied to the inner surface of the nostrils.

To relieve constipation, the bisulphate of potassa is preferable to any other cathartic on account of its tonic effects, and mild yet efficient action. In the obstinate diarrhœas which sometimes set in, the writer has found the liquor ferri pernitratidis succeed after other astringent remedies had failed.

The solution of chlorinated soda recommended by Dr. G. B. Wood, is the best application that can be made to the pseudo-membranous matter in the fauces.

Baths containing vinegar are of use in preventing contagion, and become very grateful to the patient.

During the course of the disease, the diet should be light and nutritious; and after the fourteenth day small doses of quinia and proto-carbonate of iron, or nux vomica and tincture of the chloride of iron may be given. Excessive restlessness or pain may be relieved by syrup of lactucarium or an opiate.

Among other essentials may be mentioned a large well-aired room, rest, and a lightly-covered bed.

ART. VI.—*On Fracture of the Astragalus.* By JOHN ASHHURST, Jr.,
M. D., Resident Surgeon to Pennsylvania Hospital.

ON Sunday, the 17th of November, 1861, a man was admitted into the Pennsylvania Hospital, suffering from an injury equally serious and unusual. He had been drinking to great excess for about a month before his accident, and in a dream, during his drunken sleep, jumped from the window of his room, in the fourth story of a lodging-house, alighting squarely on his feet, and subsequently on his right hip.

When I first saw him, a few hours after his fall, the right foot was much swollen, with a great subcutaneous effusion above and in front of the external malleolus. Below, and slightly posterior to the malleolus

was a hard, bony protuberance, apparently immovable, and which had no fellow on the opposite foot. The hip was merely injured by contusion.

The motions of the foot were unimpaired. The fingers could press upon the head of the astragalus without giving pain, and but for the bony protuberance below the malleolus, a mere sprain would have been diagnosed. The position of this piece of bone over the os calcis, and its length, about one and a half inches, rendered it pretty certain that but one of two things could have happened, viz., fracture, with dislocation of the astragalus, or the same combination of injuries to the calcaneum; for, that any other tarsal bone could have got in that position, and yet—as will be seen in the sequel—be easily replaced, was not to be supposed. That it was not the calcis, was rendered probable by the immobility of the fragment, by the absence of deformity on the other side of the calcis, and by the absence of crepitus, and of pain on pressure; and when the fragment had been replaced, and subsequently remained without trouble in its restored position, it became daily more and more evident that the bone of the heel was uninjured.

The lesion was therefore as follows: the man had undoubtedly struck the ground while his foot was greatly adducted, thus widening as much as possible the space between the fibular malleolus and the calcis. The astragalus had been split into two portions, the larger remaining with the head and neck, in its normal position, and thus not preventing the usual motions of the foot, while the smaller and outer portion had been violently pressed out beneath the malleolus into the position it occupied when first seen.

The course of treatment to be pursued was somewhat uncertain. Rognetta, whose admirable monograph has been of very great use to me in preparing this paper, declares that luxation of the astragalus, complicated with fracture, universally requires exsection.¹ Yet an unwillingness to neglect the chance, however slight it might be, of effecting reduction, induced me, with the approval and assistance of my colleague, Dr. Charles C. Lee, to make the attempt, which both to my surprise and my gratification, was attended with complete success. While my colleague made firm counter-extension, by grasping the calf of the leg in both hands, I proceeded to the following manipulation. Extending the limb, and having gradually adducted the foot as much as possible, I placed both thumbs over the projecting fragment, and suddenly induced a position of abduction. After this manœuvre had been repeated several times, we heard the bone go in with a dull crushing sound, like that produced by straightening a bent bone. The protuberance had now disappeared, and the foot, except in being swollen, in every respect resembled its fellow of the opposite side. A compress was placed over the spot, lead-water and laudanum applied, and the limb confined to a fracture-box. When all heat had left the ankle, equable pressure

¹ *Mémoire sur l'extirpation de l'astragale.* Paris, 1842, p. 56.

was made by means of a soap plaster and bandage, and from this time forward any one seeing the limb, would have imagined nothing more than an ordinary sprain. On the 26th of December, nearly six weeks after the accident, pasteboard splints were applied, and the patient allowed to get up. He was discharged cured on Monday, January 20th, 1862, having been in the house sixty-four days.

This accident is very rare, and so favourable a result still rarer. Out of 1901 cases of fracture treated at the Middlesex Hospital, between the years 1831 and 1837, a period of six years, there were but two fractured calcanea, and one astragalus.¹ In the record of the Pennsylvania Hospital for the last ten years, I find four cases only recorded.

The first of these was a compound fracture of both astragalus and calcaneum, and was admitted on the 23d of August, 1857. The man was a hard drinker, and was injured by a fall from a second-story window. An effort was made to save the limb, and the dressing employed was the bran dressing of Dr. Barton. A great deal of sloughing ensued, and the patient died from pyemia on the 15th of the following September, having survived the accident twenty-three days.

Another case, also a compound fracture, and complicated by fracture of both bones of the leg, was admitted on the 12th of November, 1858. This man, too, was a drunkard, and was run over by a car on one of the passenger railroads. In this case amputation was performed by the circular method, by Dr. Norris, but the man died one week subsequently, also from pyemia.

The third was a compound fracture, in which the internal malleolus was also involved. An attempt was made to save the limb by means of irrigation, the limb being placed on an inclined plane. Subsequently, however, amputation was performed at the knee-joint, and the man died from prostration, twenty-four days after admission. This patient entered the house on the 16th of May, 1860, his leg having been crushed by a heavy stone; previous to his death, a large abscess formed in the opposite leg.

On the 5th of July of the same year, still another compound fracture of the astragalus was admitted, which was treated in a fracture-box, with a wash of Goulard's extract, and extract of belladonna. This treatment was perfectly successful, the patient leaving the house cured after seventy-five days. This also was a railroad accident.

It will be observed that in none of these cases was the fracture simple, and, in all but the last very seriously complicated. Hence, mine is the only case of simple fracture of this bone received in the Pennsylvania Hospital for ten years at least.

Another curious circumstance is the cause of death in the fatal cases.

¹ Lonsdale, Treatise on Fractures, p. 18.

The two first are recorded as dying, one of pyemia, and one of purulent infection; while the third is said to have died of prostration, but at the same time it is mentioned that a large abscess formed in the right leg (the one not injured), previous to death.

Of the three that died, one survived only a week; the others twenty-three and twenty-four days respectively.

In the second case, the fracture was through the centre of the body; in the other, the direction is not recorded.

In none of these cases is it stated that there was any displacement. In mine, it will be remembered the dislocation was downwards, outwards, and backwards. I have been able to find recorded but one other case in which the dislocation was in this direction. This was Mr. Turner's case, treated at the Manchester Infirmary, in 1841, and detailed in his very valuable paper on *Dislocations of the Astragalus*, in the 11th volume of the *Transactions of the Provincial Medical and Surgical Association*. This was a compound luxation, and the entire bone was thrown out of place, without fracture of either tibia or fibula. Reduction not being practicable, exsection was performed, and the patient recovered in about seven months.

From an examination of the relations of the fibula to the tarsus, it would appear that such a large portion of bone could hardly get out between the malleolus and the calcis; yet also in Rognetta's celebrated case, the whole astragalus was thrown out, while neither malleolus was injured.¹ In some cases the astragalus is found completely inverted, as in Dupuytren's case of forward dislocation.²

In such a case, of course all attempts at reduction would be futile, and an operation would be the only means of procedure to relieve the displacement. This particular form of luxation may, according to Rognetta, sometimes be recognized by the lengthening of the entire foot, due to the astragalus being fixed between the tibia and calcaneum.

The ordinary direction in which the astragalus is luxated, either entire or a fragment, is downwards and forwards, and hence Rognetta declares that the tibia must be almost in a line with the tarsal bones to permit such luxation to occur, and suggests falling upon an inclined plane, with the heel higher than the toes, as the usual cause of this accident; but in my case the fragment was behind, not in front of the malleolus, and hence, I suppose the patient to have fallen upon an almost plain surface, with, perhaps, the toes a little higher than the heel.

Simple luxation of the astragalus is only likely to occur in young and vigorous subjects; as in the old, the malleoli would be more apt to give way than to manifest the elasticity which this luxation requires of them.

There are so few cases recorded in which luxation has been accompanied with fracture, and yet reduction effected, that it is very hard to know what

¹ Op. cit., p. 2.

² Diseases and Injuries of Bones, Lond. Syd. Soc., p. 204.

to say as to the prognosis in such a case. Lonsdale met with a case in which there was fracture (comminuted, however) without any displacement, and in which the real injury was not suspected till after death, which occurred within twelve days from the time the accident happened. Rognetta twice saw simple fractures of the astragalus, but in neither was there any displacement; they both made excellent recoveries.

Dr. Bernard Monahan has collected ten cases of fractured astragalus, nine of which were accompanied with dislocation, and eight of which were compound, but Hamilton, who refers to Dr. Monahan's paper, does not specify the result in any of the cases. Hamilton, himself, has "never met with a simple fracture of a tarsal bone accompanied with displacement."¹ Dr. Norris had a case in the Pennsylvania Hospital in 1831, where there was simple fracture with dislocation downwards and forwards; here, as reduction could not be effected, the fragment was excised by Dr. J. Rhea Barton; caries, however, ensued, and the limb was amputated with a fatal result more than eighteen months after the occurrence of the injury.² Rognetta, in commenting upon this case, thinks that had the whole astragalus been removed in the first place, the result would have been different.

Fabricius Hildanus is the first author who gives a clear account of these injuries: he mentions an instance in which recovery took place after extirpation of the bone.³ Ambrose Paré confused this luxation with that of the entire foot.⁴ Desault saw several cases of dislocated astragalus, in one of which reduction being impossible, he cut down and divided the capsule, thus removing the obstacle to the bone's resuming its place. The result was favourable.⁵ Dupuytren met with ten or twelve cases of luxated astragalus, in some of which reduction was easy, in one, could only be partially effected, and in several of which he performed exsection of the bone.⁶

Malgaigne mentions two or three cases of fracture of the astragalus, but does not record any as occurring in his own practice.⁷

From a theoretical consideration of the matter, it would seem that either simple dislocation or simple fracture would promise better results by itself than when complicated with the other; but if reduction can be effected in a case such as mine, of course, thereafter, it becomes a simple fracture. And hence reduction should be at first attempted as a matter of course, unless the lengthening of the foot should show that complete inversion of the astragalus had taken place. Should reduction be impossible, I should be inclined to follow Desault's example, and by the assistance of the knife, facilitate the restoration of the displaced bone.

¹ Pract. Treatise on Fractures and Dislocations, p. 479.

² Am. Journ. of Med. Sci. for August, 1837.

³ Opera. Cent. II. Obs. 67.

⁴ Opera. Lib. XIV. Cap. 24.

⁵ Œuvres Chirurgicales, tom. I.

⁶ Diseases and Injuries of Bones. Syd. Soc. translation, pp. 316-325.

⁷ Treatise on Fractures. Packard's edit.

In a compound fracture or luxation, it would also be good practice, provided the injury to the soft parts was not excessive, to attempt reduction. If, however, the laceration were very great, or if it were found impossible to effect reduction, exsection would offer the best chance of success. After reduction in a compound luxation, union by the first intention might be aimed at, though it most probably could not be obtained. After the operation of exsection, I should suppose it scarcely worth while to make the attempt.

In no contingency would I be disposed to allow the bone to remain unreduced: inflammation, sloughing, and destruction of the joint would most probably ensue, and, under any circumstances, a lame and useless limb would be likely to remain.

Carious bone within a joint would prove a foreign body of the worst description, and the experience of military surgeons must be remembered, that any foreign body in a joint is much more dangerous than a free incised wound with all its risks of the admission of air to the synovial membrane.

The prognosis of the operation of exsection is very favourable. Heyfelder reports sixty-seven cases of exsection of the astragalus, of which fifty-eight resulted successfully, while in only nine was there a fatal issue. Heyfelder's statistics are referred to in the number of the *Medical and Surgical Reporter* for Nov. 30, 1861.

Amputation, which in Gooch's time,¹ was regarded as almost the only remedy in these cases, it need hardly be said, should never be performed for the lesion of the astragalus alone. In those horrid railroad accidents which are so often seen in city hospitals, in which the whole foot is crushed, of course there is no other chance presented of saving life.

ART. VII.—*On the Colour Tests of Strychnia, as modified by the presence of Morphia.* By ROBERT P. THOMAS, M. D., Professor of Materia Medica, in the Philadelphia College of Pharmacy.

DURING the last few years, the attention of the profession has been attracted to the consideration of the various means which have been recommended for the detection of strychnia in cases of poisoning by that powerful agent; and some of the ablest minds of Europe, and of this country, have contributed the results of their labours to the common stock of knowledge on this important point. Having received a thorough investigation from such hands, and its relations traced in almost every possible combination

¹ Chirurgical Works, vol. ii. p. 360.

or association, and the tests of its presence—both physiological and chemical—having been proved to be alike clear and distinctive, it would appear probable that little more could be added towards the perfection of its history.

Nevertheless, a question of great moment has recently arisen, as to the possibility of detecting it at all, if the poison should be associated with an equal, or a greater quantity of *morphia*, or a salt of *morphia* in the presence of an organic fluid. An able and exceedingly valuable paper on this subject was published in a late number (Oct. 1861) of this Journal; and another article on the same is to be found in the *Ohio Med. and Surg. Journal*, for September, 1859.

The property, referred to morphia when combined with organic matter, of preventing the detection of strychnia by colour-tests, will, if confirmed, afford a satisfactory explanation of the difficulty experienced by Drs. A. S. Taylor, and G. Owen Rees, in their examination of the viscera of J. P. Cook, as elicited on the celebrated trial of William Palmer for his murder, in England in May, 1856. They could not detect a trace of strychnia, notwithstanding the symptoms antecedent to Cook's decease pointed unequivocally to this alkaloid as the fatal agent. If not decomposed, it must have been masked by the presence of morphia, as Mr. Bamford, the attending physician, administered half a grain of this narcotic, each night, for three successive nights previous to his decease. The circumstances of this trial, and the experiments, described in the papers referred to, furnish an imperative reason for a further investigation of the subject; as the suicide or murderer can destroy all traces of his work, by simply combining an excess of morphia with a poisonous dose of strychnia. The former will not delay the fatal action of the latter, but on the contrary, will rather aid it.

With the view of determining the important question, whether strychnia is actually decomposed when treated with test-agents in the presence of morphia, or whether it is merely masked by such presence? I have performed more than a hundred experiments, of which an account of a few of the most valuable and satisfactory is now submitted. Premising that, in the examination of minute portions of strychnia, success or failure depends entirely upon the care given to the details. In all of my experiments I employed crystals of the pure alkaloids, and of their salts.

The "colour-tests" referred to in this paper, are those furnished by bichromate of potassa, or by the ferricyanuret of potassium (red prussiate of potassa), when added to a portion of strychnia previously dissolved in a drop of strong sulphuric acid. The discrepancies in the results of the published experiments of different observers depends, I think, in a great measure, on their diverse modes of procedure, and therefore I feel justified in giving a precise account of—

THE MODE OF TESTING.—In every instance the material to be tested was employed in the solid form, such as the pure alkaloids or their salts. If it

existed in solution, it was reduced to a solid consistence by evaporation in a test capsule, spontaneously, or by a very gentle heat. Having thus procured a solid substance, a small portion of it was placed upon a white plate, a drop of strong pure sulphuric acid was added, and trituration was carefully made with a glass rod until the substance was dissolved. Then a small quantity of powdered bichromate of potassa, or of powdered ferri-cyanuret of potassium, was deposited on the plate, *near the acid mixture but not touching it*, and to the powder a minute drop of water was added—just enough to partly dissolve it—and then, with a pointed glass rod, a little stream was drawn from each of the solutions in such a direction as to cross each other. Immediately at the point of intersection the play of test-colours was beautifully manifested. When the bichromate was employed, the sequence of colours was blue or violet, instantly changing to purple, then gradually becoming red, and finally greenish-yellow. When the ferri-cyanuret was used the colour was a rich bluish-purple, changing rapidly to a light rose-red. It is important to proportion the sulphuric acid to the amount of alkaloid, avoiding an excess beyond what is necessary to its perfect solution; and therefore it is better to take the acid out of the bottle by a pointed glass rod, rather than to drop it from the lip.

The first series of experiments was instituted for the purpose of determining how far pure morphia or one of its salts, when combined with strychnia, would prevent the manifestation of the colour-tests.

Expt. 1. Accordingly, equal weights of the pure alkaloids were rubbed together in a mortar and tested; next, one part of strychnia to three parts of the sulphate of morphia; then one of strychnia to four of the acetate of morphia; then one of strychnia to eight, and finally, one to twenty parts of the sulphate of morphia. In each case the result was entirely satisfactory; the colour-test flashing out, with more or less distinctness in proportion to the relative quantity of morphia, as soon as the margins of the two solutions on the plate came into contact. As intimated above, one solution was made by rubbing the powdered bichromate with a drop of water, the other by triturating a portion of the morphia and strychnia with a drop of sulphuric acid, being careful to use just sufficient acid to insure a perfect solution. I did not consider it necessary to carry this experiment any further, because, in a case of poisoning in which the morphia should be twenty times greater than the strychnia, the fatal result and the attendant symptoms would probably be more characteristic of the action of the former than of the latter, and our experiments would be devoted to its detection.

Expt. 2 was an exact duplicate of the first in all of the varied strengths of the two articles, with the simple difference of having them in solution in water acidulated with acetic acid, instead of being in the solid form.

To obviate the necessity of a subsequent concentration of the solutions

by heat, the salts or alkaloids were macerated in small measures only, of acidulated water, and to each solution an excess of a solution of potassa was added, and then an equal measure of chloroform, which dissolved out the strychnia, and subsequently yielded it as a filmy deposit in a capsule, by spontaneous evaporation.

With sulphuric acid and bichromate of potassa, the proper test-colour was manifested by the deposit in each case.

In my opinion, these experiments determine conclusively that strychnia can be detected by colour-tests, even when masked by morphia—either as the alkaloid or one of the salts—to the extent of twenty times its own weight.

But the question raised is not so much, whether strychnia will be masked by pure morphia or its salts, uncontaminated with anything else, as whether *morphia in the presence of organic mixtures* has the power of preventing the recognition of strychnia by the usual colour-tests. To determine this latter point, my attention was directed in the next instance, to the devisal of a simple and practical method, by which its recognition could be secured. Upon reflection, I concluded that the most feasible plan of overcoming the difficulty, would be to separate the poison entirely from the organic mass, by chemical agents and solvents.

After careful investigation and repeated trials, I selected as the agents the three fluids used in experiment 2. These fluids can always be obtained at trifling cost, of easily ascertained strength, and of known purity. They are, 1. Acetic acid, of the specific grav. 1.041. 2. A solution of one drachm of caustic potassa in a fluidounce of water. And, 3. Chloroform.

Acetic acid was chosen, because, when in excess, it has the property of dissolving all of the ordinary salts, both of morphia and strychnia, as well as their tannates, which are generally described as being insoluble; and, therefore, by treating an organic mass containing these alkaloids with this acid, we would obtain a solution of the acetates of morphia and strychnia.

The solution of caustic potassa was selected for several reasons. For instance, in neutralizing the acetic acid it forms a soluble salt of potassa—thereby getting rid of the acid when we are done with it. It saponifies the fats of the organic materials; it decomposes their sugars; and it dissolves morphia, but does not dissolve strychnia, thus enabling us to separate the one alkaloid from the other by its agency.

Chloroform was resorted to, for its solvent and volatile properties. Thus, 100 parts of it, according to M. Pettenkoffer, at ordinary temperatures dissolve 20.16 parts of strychnia, and only 0.57 parts of morphia. A fluidrachm of it, holding the strychnia in solution, will evaporate spontaneously in a few minutes if placed upon a saucer or plate.

As the solution of potassa dissolves morphia and rejects strychnia, while chloroform has the reverse property of taking up the strychnia and

rejecting the morphia, it must be evident that the conjoint use of these fluids would effect an entire separation of the two alkaloids—the morphia being held by the potassa, and the strychnia by the chloroform.

Another important practical advantage in the use of these fluids is found in their different specific gravities. The chloroform, being the heavier, sinks to the bottom of the vessel containing them, and thus a separation is easily accomplished.

The eliminating properties of the three fluids were determined in the following way:—

Expt. 3. One grain of strychnia and three grains of opium were macerated for three days in a mixture of equal measures of acetic acid and water; then filtered, and to the clear liquid equal bulks of the caustic solution and chloroform were added, and the whole well shaken together. Upon subsidence, the chloroform was separated, and a part of it evaporated on a plate. The deposit, thus obtained, was treated with sulphuric acid and the bichromate of potassa, in the manner before described, when a fine play of test-colours resulted.

In this and the subsequent experiments, care was always observed to have the caustic solution in sufficient excess over the acetic acid to dissolve the morphia, and leave the solution alkaline to test paper.

Having thus determined the practicability of regaining the strychnia, in a separate state, from a solution in which it had been associated with the various alkaloids of opium, I proceeded, in the next instance, to the examination of its relations to morphia in the presence of organic matter. For this purpose a nutritive mass was prepared as the representative of the contents of a man's stomach, if death should occur soon after a meal. The mass consisted of two ounces of minced-meat (such as is used for pies, and containing meat, suet, various dried fruits, cider, spices, and a little brandy), two ounces of bread, a portion of salt, pepper, and vinegar, and two fluidounces of a strong infusion of coffee, well-sweetened. In other words, an association of the nitrogenous and non-nitrogenous elements of food, with spices, alcohol, tannic acid, and caffeine. To this mass, one grain of strychnia and five grains of morphia, which had been previously well triturated together and dissolved in a mixture consisting of one fluidrachm of vinegar and fifteen fluidrachms of water, were now added, and the whole carefully mixed. The mixture was set aside for twenty-four hours to permit the alkaloids to permeate the entire mass, and it was then divided into four equal parts. Each part being made the subject of an experiment, as follows:—

Expt. 4. The first portion, containing one quarter of a grain of strychnia and one and a quarter grains of morphia, was treated with fʒij of acetic acid (1.041), and fʒiv of water. The mixture having been allowed to

stand for sixty hours, was raised to the boiling point and ebullition was maintained fifteen minutes. Having been strained and filtered, equal quantities of chloroform and the caustic solution were added to the filtered liquid; the whole were well agitated together, and after subsidence, the chloroform was separated and evaporated. Upon treating the deposit with sulphuric acid and ferricyanuret of potassium the distinctive play of colours appeared.

This experiment proves that strychnia is not decomposed by a heat of 212° , maintained for a short period, even though morphia and organic matter be present. The elevated temperature is objectionable, however, from the large amount of starchy matter dissolved by the boiling water, which clogs the subsequent steps of the process.

Expt. 5. The second portion, containing the same amount of alkaloids as the preceding, was macerated twelve hours in f5ij of acetic acid, and f5ij of water, then strained with pressure and filtered. The resulting liquid was treated with equal measures of chloroform and the caustic solution. The deposit from the evaporated chloroform yielded the proper colours with the test-agents.

This, like many subsequent experiments, proves that it is unnecessary to employ heat; acetic acid, mixed with an equal measure of cold water, being amply sufficient for the extraction of alkaloids from an organic mass.

Expt. 6. The third portion was macerated, like the preceding, for twelve hours, in acetic acid diluted, and then pressed and filtered. The resulting liquid was placed in a capsule before the register of an ordinary house-furnace, and was evaporated to a syrupy consistence by the warm air passing over its surface. To this, the chloroform and the solution of caustic potassa, in equal measures, were applied, and all well mixed. The separated chloroform yielded a deposit which was proved to be strychnia by the test-agents.

By this experiment, we learn that a solution containing both alkaloids in contact with organic matters may be evaporated, by a moderate heat, almost to a solid consistence, without their decomposition.

Expt. 7. The fourth portion was set aside for twelve days in a room having a temperature of 68° to 70° . At the expiration of this period, the mass had become sour and offensive, and was spotted with crusts of mould. It was then macerated for twelve hours in a mixture of f5ss of acetic acid, and f5jss of water. After which it was strained, filtered, and evaporated, like the preceding, to the consistence of syrup, by the passage of a current of warm air over the surface. As the resultant liquid was intensely sour as well as bitter, I added two measures of the caustic solution and one of chloroform, and agitated the mixture as in former cases. When the chlo-

roform was separated, and a part of it evaporated in a capsule, the most beautiful and distinctive colours appeared after the employment of the proper tests.

This experiment was instituted for the purpose of ascertaining whether strychnia is liable to undergo any change in the presence of organic matter by the lapse of time, even where that matter has fermented and exhibited evidences of incipient decomposition. The result affords a strong inference that it could be detected in the contents of the stomach after a body had been deposited several days in the grave.

I carried this experiment a step further with a view of determining whether morphia could also be regained from an organic mixture in a state of commencing decomposition. Consequently, after separating the chloroform and caustic solutions from each other, I added acetic acid to the latter, drop by drop, until it was neutralized. Then a solution of tannic acid was added, and the precipitated tannate was collected and dissolved in acetic acid. The solution afforded a red colour with nitric acid, and a rich blue colour with the persulphate of iron, and was, moreover, very bitter to the taste. Thus establishing, conclusively, the presence of morphia.

Having entirely satisfied my own mind, by the foregoing experiments, that no inherent difficulties exist in the detection of strychnia by the colour-tests when it is associated with morphia and involved in a great mass of animal and vegetable matters, I might with propriety dismiss the subject. But as so large a quantity as a grain of the poison might not be found in the stomach after death, in consequence of the use of emetic remedies, or the partial absorption of what had been swallowed, I concluded to try the process on a much smaller scale, and accordingly performed, as follows—

Expt. 8. Two ounces of minced-meat (similar to that used in experiments 4, 5, 6, and 7), and two ounces of bread, were macerated eight hours in four fluidounces of water, holding in solution one-hundredth of a grain of strychnia, and one-thirty-third of a grain of the sulphate of morphia.¹

Half a fluidounce of acetic acid, with an equal measure of water, was added, and the mixture set aside for six hours. It was then strained, with pressure, and filtered. The remaining clear liquid was divided into two portions, *a* and *b*.

One portion (*a*) was placed in a capsule in a current of air at 70°, and thus evaporated to a syrupy consistence. It was treated with the caustic solution and chloroform, as in the former cases; and, upon the careful application of the tests to the film obtained by evaporating the chloroform,

¹ These minute quantities were obtained with great accuracy by dissolving one grain of the former, and three grains of the latter, in fifty fluidrachms of water, acidulated by a few drops of acetic acid. Half a fluidrachm of this solution contained gr. $\frac{1}{100}$ of strychnia and gr. $\frac{1}{33}$ of the sulphate of morphia.

clear and undoubted evidences of the presence of the poison were afforded by a transient yet distinct play of colours.

The other portion (*b*) was treated directly with a measure of chloroform and two measures of the caustic solution. After mixing these carefully together, the chloroform was drawn off, placed in a capsule, and evaporated spontaneously. A very delicate filmy deposit, of a white colour and bitter taste, was observed in the capsule. A part of this gave, with sulphuric acid and ferricyanuret of potassium, a distinct but evanescent change of colours, indicating positively the presence of strychnia.

To determine more satisfactorily the precise nature of the deposit obtained from this experiment, I evaporated, upon a slip of glass, drop after drop of the chloroformic solution until an appreciable deposit was procured, and to this a drop of dilute nitric acid was added. When dry, it was placed under a microscope at a magnifying power of 100 diameters, and a crop of well-defined crystals of the nitrates of strychnia and brucia was apparent.

This experiment proves conclusively that strychnia in minute quantities can be regained from organic mixtures, notwithstanding the presence of three times its weight of the sulphate of morphia.

In conclusion, I may be permitted to offer to those who shall be called upon to determine the presence or absence of strychnia in cases of suspected poisoning, a few practical suggestions, viz:—

1. In testing for minute portions of the poison, success or failure depends entirely upon the care given to the details of the process.

2. In examining the contents of a stomach, the employment of heat is not required for the detection of strychnia, nor should any unnecessary fluid be added which might require subsequent evaporation. Equal measures of acetic acid and cold water, in sufficient amount to thoroughly acidulate the mass, are all that is requisite to extract any alkaloids or their salts that may be present, and, to insure success, these must be reduced to the solid state.

3. In the application of reagents for the production of the colour-tests, care should be observed not to add any more sulphuric acid to the strychnia than what is necessary to dissolve it; and, in like manner, the powdered bichromate of potassa, or ferricyanuret of potassium, should only be moistened, as by touching a glass rod with the point of the tongue and then rubbing it over the powder. In this manner, two saturated solutions or mixtures are obtained, which show the play of colours as soon as their margins are brought into contact, even though the quantity of alkaloid present be very minute.

ART. VIII.—*Observations on Obscure Brain Disease, with an Illustrative Case.* By N. NIVISON, M. D., of Burdett, Schuyler Co., N. Y.

THERE is, perhaps, no department of medicine presenting such imperative and legitimate claims to our attention, which has been so much neglected as that of *cerebral pathology*.

Numerous cases falling within this category, and threatening the most serious consequences, are, it is feared, too often overlooked or misunderstood by the medical attendant.

Many of these cases, tending either to insanity or mental imbecility, it is confidently believed, would be entirely amenable to well-directed therapeutics if their true character were seasonably recognized.

Brain disease may be *inferred* from disordered cerebral sensibility. It is *demonstrated* by disordered mental action. Were we at all times able to define precisely where healthy intellection ends, and where disordered intellection begins, the diagnosis of the incipient stages of certain obscure forms of brain disease would be comparatively easy. But in the present state of our knowledge this is difficult, often impossible.

I can but hope that a subject which underlies such a vast amount of misery, both physical and mental, and which so forcibly addresses itself, not alone to the physician, but also to the moralist, the jurist, and the philosopher, is about to receive the meed of attention to which, by virtue of its importance, it is so justly entitled.

With the hope of directing the attention of more able observers to this much neglected subject, I offer a brief statement of the following illustrative case.

In September last, while practising in the village of Yonkers, I was consulted by a gentleman, apparently about 35 years of age, of nervo-sanguine temperament, who gave of himself the following history: He is a New York merchant, business relations extensive, both here and on the other side of the Atlantic. Has always enjoyed excellent health until last spring, at the time of the "panic;" when his business gave him much anxiety. He soon after began to experience very strange sensations in the head, but as they were only momentary, and occurring but three or four times a day, he gave them little attention. Soon, however, they became more frequent, recurring at any time, and especially when a little extra exertion or close thinking was required. On the days of the arrival and departure of the European steamers it was worse; riding in the cars would produce it. He could not add up a column of figures without feeling it, and when such was the case he lost his reckoning; was obliged to begin and make the addition over again. It was sometimes necessary to repeat this process again and again before the addition was complete. In de-

scribing this peculiar sensation, he could only say it was a "confused feeling," lasted for a moment and was gone.

It was, nevertheless, apparent that it was to him a subject of much anxiety and apprehension. Though he was scarcely aware of it himself, a very critical examination satisfied me that there was at each paroxysm a brief, though almost inappreciable period of time, in which there was loss of consciousness—for a moment the mind refused to act. An instant of mental confusion, a moment of forgetfulness, a sensation as if aroused from slumber; and the paroxysm was gone.

He confessed to a slight impairment of his usual energies, but otherwise, with the exception of these strange sensations, was as well as usual.

He had taken medical advice early, and at intervals since, both here, and in Europe, but without sensible relief. Hepatic torpor was at first suspected and prescribed for. Not getting the desired relief, it was suggested that his business was too severe a tax upon him. He was advised to travel. Went to Europe accompanied by his family. He spent some three months abroad, but did not improve. It is now six weeks since his return, during which time he has given some attention to business, and grown steadily worse, the paroxysms frequently occurring several times an hour.

I consented to take his case under advisement. For the first two weeks my treatment was entirely experimental.

I suspected the condition of the brain was one of atony, and more extended observation led me to believe that this atonic condition was due to some strange perversion, whereby *the nutrition of its tissue was inadequately performed*.

The salts of zinc, nux vomica, and a variety of other remedies were successively tried, with little or no relief. I then gave quiniæ sulphas gr. iss, ter in die. He immediately improved, the unpleasant paroxysms were much less frequent. The countenance became animated, and we began to entertain hopes of a speedy recovery. But in this we were doomed to disappointment. For although the "strange sensations" had now well-nigh disappeared, a new set of morbid cerebral symptoms immediately succeeded them. He now complained of *constant pain* in the head. This increasing in severity, became a source of much anxiety. At the end of ten or twelve days the quinia was discontinued; but the pain remained. A week later, the pain still remaining, I began to suspect a sub-inflammatory condition of the brain.

Acting upon this hypothesis, I ordered a pill of prot. iod. hyd. gr. ss, extr. hyoscyami gr. j, to be taken twice a day; at the end of a week he was greatly relieved. It was continued some two weeks longer, when he expressed himself as feeling better than in many months.

December 15th. The remedy has been used at intervals; he is now, to use his own language, "almost quite well."

If this case is remarkable, it is chiefly so for its obscurity, and the simplicity of the treatment to which it finally yielded. It was a problem which several eminent physicians both in this country and Europe failed to solve.

With much deference, I submit the following as its rationale.

The incidents of the "panic" imparted to the brain a condition analogous to what in surgical technology we denominate "shock." This not only produced temporary incapacity, but so far impaired the tone of its nutrient vessels as to produce permanent inanition; *ramollissement* would have speedily followed.

A merely overworked brain, still retaining its integrity, should have recovered during the protracted relaxation of the voyage to Europe.

The tonics restored the lost action to the nutrient vessels, the unpleasant paroxysms at once subsided. But the tonics did more than this, they produced excessive action, inflammatory even. This yielded to the silent and continued action of the alterative, and a healthy equilibrium was restored.

Had not remedies been successfully addressed to this case, I cannot resist the conviction that softening of the brain with mental fatuity would ultimately have resulted.

With Winslow, we are prepared to believe that "there are few morbid mental conditions so fatal in their results as these apparently trifling, evanescent, and occasionally fugitive attacks of mental depression."

TRANSACTIONS OF SOCIETIES.

ART. IX.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1861. *Sept.* 4. Dr. REESE made a verbal statement of the results of certain experiments, undertaken with a view to determine *the effect of the presence of morphia in disguising the usual colour-test for strychnia*. These experiments were based upon a case of alleged poisoning by strychnia, in which a man was indicted for the wilful murder of his wife, in Perry Co., Pennsylvania, in April, 1861. The stomach and a portion of the small intestine were examined by Dr. Reese for strychnia, eight weeks after the death of the woman; and although the most scrupulous care was bestowed upon the analysis—six or seven separate investigations having been made—no trace whatever of the poison could be detected, either by the colour-test, or from the bitter taste of the ultimate ethereal extract. The chemical processes employed were those known as Graham and Hoffmann's (in which animal charcoal is used to extract the alkaloid), the process of Staäs, and that of Prollius (in which chloroform is used as the ultimate solvent).

Now, as all the *moral* circumstances of the case, as well as the symptoms exhibited by the woman clearly pointed to strychnia as the cause of death, it became a matter of interest and importance to ascertain, if possible, if there was any adequate reason for the non-detection of the poison. There were several circumstances which, in Dr. Reese's judgment, might have explained this failure. First, the length of time (eight weeks) that had elapsed between death and the chemical examination; it being admitted by the best authorities, that organic poisons do undergo change in the body *after* death. Secondly, the rather unusual length of time (seven or eight hours) that the woman survived after taking the poison; it being clearly established that the alkaloids are very rapidly absorbed from the stomach and eliminated from the blood; consequently, in the present case, *all* might have disappeared before the examination was made. Thirdly, the fact, that the woman had taken, by the advice of her physician just before her death, *a quarter of a grain of morphia*.

It was this latter circumstance that led Dr. Reese to make his experiments, with a view to determine the question of how far the presence of morphia would interfere with the production of the usual *colour-test* for strychnia, when in contact with organic matters. We subjoin only the most striking ones.

Experiment 1.—The $\frac{1}{100}$ th of a grain of strychnia was put into a pint of water, together with several ounces of beef, finely cut up, some starch, common salt, and a few drops of acetic acid (the object being, as nearly as possible, to represent the contents of a stomach after eating). The whole was subjected to moderate heat, strained, pressed, and evaporated, and finally treated after the process of Mr. Staäs. The ethereal solution, on being concentrated, yielded clear proof of the presence of strychnia, both by the colour-test and by the bitter taste. This experiment was intended to prove the delicacy and accuracy of the process that had been employed in the previous analysis of the stomach.

Expt. 2. This was a repetition of the last, except that to the $\frac{1}{100}$ th gr. of strychnia there was added three times that quantity of morphia ($\frac{1}{33}$ d

of a grain). Although the same process precisely was employed, not the slightest trace of strychnia could be discovered by the colour-test.

Expt. 3. This resembled *Expt. 2*, except that the $\frac{1}{100}$ th of a grain of morphia was added to the $\frac{1}{100}$ th of a grain of strychnia (or double instead of treble). Here, likewise, the colour-test entirely failed.

Expt. 4. In this case an equal amount of morphia only, or the $\frac{1}{100}$ th of a grain, was added to the strychnia, and the same method pursued as in *Expt. 2*. The result was that the faintest possible evidence of the presence of strychnia was afforded, and only after repeated trials.

From these last experiments, Dr. Reese concludes that "*the influence of morphia in preventing the detection of minute quantities of strychnia in the presence of an organic fluid, depends upon the relative quantity of the two alkaloids, the strychnia not being discoverable when the morphia is in excess, and barely discoverable when in equal quantity.*"

As the results of numerous experiments made with various quantities of strychnia and morphia in the pure state, *i. e.* free from all organic mixture, Dr. Reese stated that not only is the difficulty of detecting strychnia greatly increased by increasing the proportion of morphia, but that the actual amount of it discoverable is nearly in an inverse ratio with the amount of combined morphia. For example, when the quantity of the two alkaloids was in the proportion of one to one, he was able to detect as small an amount of strychnia as the $\frac{1}{500000}$ th of a grain. From this, the minimum amount discoverable progressively rose with the increase of the proportion of the associated morphia, until the last experiment, made with one proportion of strychnia to twenty of morphia, when the smallest quantity that could be detected had increased to the $\frac{1}{50000}$ th of a grain.

The amounts experimented upon were, purposely, extremely small, so as to afford fair conclusions in cases of actual poisoning.

In order more fully to settle this question, and to answer the objection that the result might possibly have been different if the two alkaloids had been in the stomach of a *living* animal, the following experiments were made: Half a grain of pure strychnia was administered to a cat, which died in convulsions in eleven minutes. The stomach, examined on the following day, by Staäs' process, afforded clear proof of strychnia by the colour-test. To a second cat, a quarter of a grain of strychnia, and the same quantity of morphia were given, and the stomach examined, as before. The faintest possible evidence of strychnia was obtained, exactly coinciding with a previous experiment made with the organic mixture. To a third cat, the $\frac{1}{20}$ th of a grain of strychnia and the $\frac{1}{10}$ th of a grain of morphia were given (double the quantity). Here there was a total failure to obtain the colour-test; although the bitterness of the extract, and the fact that the solution produced the characteristic tetanic convulsions in a number of frogs, distinctly proved its existence.

From all the foregoing evidence, Dr. Reese believes that his proposition is clearly established; and he calls the attention of the profession, and more especially of the toxicologist, to its importance in a medico-legal point of view.

In connection with the above, the extreme delicacy of the colour-test for strychnia was noticed, Dr. Reese having been able to determine less than the half-millionth of a grain, when free from organic mixture; and on some occasions, he had even succeeded in procuring the characteristic flash of blue colour, when operating with as minute a quantity as the *one-millionth* of a grain. Among the colour-producing or oxidizing bodies usually employed, he prefers the ferrocyanide of potassium (red prussiate) in conjunction with the sulphuric acid, as being, in his hands, the most delicate.

Along with the colour-test, Dr. Reese also noticed the extreme delicacy of the *physiological* or *frog-test*. He had made some interesting experiments with this test, with the twofold view of, first, establishing its comparative value with the colour-test; and secondly, of ascertaining how far the presence of morphia would interfere with its delicacy. Some of his results are here given:—

Expt. 6. A small frog weighing about 40 grains was immersed in a solution containing one grain of strychnia to twelve pints of water (one drop of which would contain the $\frac{1}{215000}$ th of a grain): tetanic spasms were produced in fifteen minutes.

Expt. 7. A solution of one-half the strength of the foregoing, in which one drop would represent the $\frac{1}{430000}$ th of a grain, produced decided convulsions in a frog weighing 29 grains, after half an hour's immersion.

Expt. 8. The $\frac{1}{500}$ th of a grain of strychnia was put into the mouth of a middling-sized frog: it was convulsed, and died in about thirty minutes. The extract, obtained from the abdominal viscera by Staäs' process, although it afforded no perceptible colour-test, had a bitterish taste and produced tetanic spasms in several small active frogs.

In these experiments the frog was put into a small quantity of the solution—not more than about half a fluidrachm, so as simply to cover the hind legs and a portion of the body. The quantity actually absorbed through the skin must, necessarily have been extremely minute; hence the great delicacy of this test, and its value as a *corroborative* proof in medico-legal investigations.

As regards the question whether the presence of morphia would interfere with the value or delicacy of the frog-test, Dr. Reese's experiments clearly demonstrate the fact that morphia, which has been shown so completely to disguise the usual *colour-test* most fortunately produces no observable effect upon the delicacy of the frog-test. We subjoin a few results:—

Expt. 2. A frog weighing 40 grains was immersed in a solution containing one grain of strychnia and eight grains of morphia in twenty-four fluidounces of water, it exhibited tetanic spasms in five minutes.

Expt. 3. A frog weighing 100 grains was immersed in a solution containing one grain of strychnia and twelve grains of morphia in forty-eight fluidounces of water. It exhibited the usual tetanic spasms in fifteen minutes.

Expt. 4. A frog weighing 35 grains was immersed in a solution containing one grain of strychnia and thirty-two grains of morphia in six pints of water. It was convulsed in twenty minutes. Another animal rather smaller was affected in five minutes.

Expt. 5. A cat was poisoned by taking $\frac{1}{20}$ th of a grain of strychnia and $\frac{1}{10}$ th of a grain of morphia. The stomach on being analyzed by Staäs' process failed to yield the colour-test; but the watery solution of the extract produced the most decided tetanic convulsions in eight frogs, generally resulting in death.

The *bitterness of taste* of strychnia has also been the subject of experiment by Dr. Reese. He has found it to be decidedly the *most* bitter substance known. One drop of a solution containing a grain dissolved in five gallons of water, yielded a perceptibly bitter taste, equivalent to the $\frac{1}{500000}$ th of a grain; and a solution containing one grain in twenty-five gallons of water, produced a sense of bitterness when a portion of it was forcibly rinsed in the mouth.

The bitter taste of the ultimate extract is an important corroborative proof of the presence of strychnia, in all supposed cases of poisoning; so

much so, that it is very questionable whether the *colour-test* can ever be obtained, where the extract fails to yield a bitter taste.

Dr. Thomas inquired if Dr. Reese had made any experiments with the frog-test upon the extract procured from the stomach of the woman I supposed to have been poisoned?

Dr. Reese replied that, "although he was very desirous to have done so, he was unfortunately unable to procure any frogs of the proper kind in the winter season, when his analysis was made. This was the only link wanting to complete the chain of evidence."

Dr. Thomas remarked that from his own experiments with strychnia and morphia combined, on frogs, the latter alkaloid appeared to have no effect in antagonizing the influence of the former, so as to counteract its poisonous impression. This corroborated the results of Dr. Reese's experiments on both frogs and cats.

1862. Feb. 5. *Report on Meteorology and Epidemics for 1861.*—Dr. WILSON JEWELL read the following report:—

METEOROLOGY.—As in former years, I have the pleasure of presenting an abstract of meteorological observations for the year 1861, made by my friend James A. Kirkpatrick, A. M., Prof. of Civil Engineering in the Philadelphia High School. These observations are taken for the Smithsonian Institution at Washington, and are authoritative. He has also at my request furnished a comparison of some of the meteorological phenomena of the year 1861 with those of 1860, and of the ten years from 1852 to 1861 inclusive, for Philadelphia, which I subjoin in his own words.

The mean temperature of the year (1861) was about six-tenths of a degree above that of the year 1860, and about four-tenths of a degree above the average for the last ten years.

The maximum temperature (95°) occurred on the 8th day of July. The minimum temperature, one degree below zero, was on the 8th of February. The range of temperature for the year was consequently 96° .

The warmest day of the year was the 8th of July, of which the mean temperature was 87.8° . The coldest day was the 13th of January, the mean for that day being 7.8° .

Of the seasons, this winter was one degree warmer, and the summer one degree and a quarter colder than the average for ten years. The spring was one-tenth of a degree colder, and the autumn six-tenths of a degree warmer than the average.

The temperature of all the months except three, fell within two degrees, of their average temperature for ten years. The month of October was three degrees above the average, and was the warmest October during the ten years of observation. February was $5\frac{1}{2}^{\circ}$ above the average, and was the warmest February, for ten years, except February 1857, which was half a degree warmer.

The temperature of May was $3\frac{1}{2}^{\circ}$ below the average, and was the coldest May for ten years, except May, 1858, which was seven-hundredths of a degree colder.

The maximum pressure of the atmosphere (30.526 inches), occurred on the 23d of January; and the minimum pressure (29.096), on the 27th of May.

The force of vapor and relative humidity for the whole year were greater than for 1860, but less than the average for ten years.

The amount of rain that fell during the year was an inch and a half more than the average amount for ten years. The quantity that fell in the month of December (2.016) was less than in any December since 1851; and the number of rainy days was fewer than ever before observed for that month.

General Abstract of Meteorological Observations, made at Philadelphia, Pa., during the year 1861.
 By JAMES A. KIRKPATRICK, A. M., Prof. of Civil Engineering in the Philadelphia High School.
 (Barometer fifty feet above ordinary high water in the Delaware River.)

1861.	THERMOMETER.										BAROMETER REDUCED TO 32° F. But not corrected for altitude.							
	Months.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Range.		Mean of daily oscilla- tions.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Range.	
								Monthly.	Mean daily.								Monthly.	Mean daily.
January	27.67	34.31	30.90	30.97	49½	1	48½	5.98	11.61	29.991	29.953	29.968	29.971	30.526	29.460	1.066	.229	
February	33.86	45.55	39.14	39.52	68½	-1	69½	8.90	17.27	29.954	29.912	29.951	29.939	30.485	29.308	1.177	.264	
March	37.73	48.71	41.58	42.67	78½	16	62½	8.66	18.18	29.917	29.862	29.906	29.895	30.386	29.354	1.032	.231	
April	47.18	60.55	51.10	52.94	88	33	55	5.55	19.03	29.845	29.787	29.816	29.816	30.233	29.213	1.020	.143	
May	53.40	65.71	57.00	59.38	83	36	47	5.06	19.55	29.744	29.691	29.726	29.720	30.132	29.096	1.036	.166	
June	69.30	79.27	70.83	73.13	91	51	40	5.29	18.55	29.783	29.742	29.739	29.754	30.062	29.528	.534	.104	
July	72.74	82.87	72.69	76.10	95	55	40	3.70	19.20	29.800	29.765	29.780	29.781	29.961	29.505	.456	.078	
August	68.88	79.52	71.05	73.15	94	51½	39½	3.94	16.84	29.912	29.896	29.910	29.906	30.212	29.608	.604	.098	
September	62.37	71.75	66.72	67.95	86	46	40	4.41	17.22	29.953	29.913	29.924	29.930	30.343	29.283	1.060	.144	
October	51.32	66.61	58.69	59.87	88	34	54	5.28	16.94	29.945	29.893	29.926	29.921	30.452	29.469	.983	.166	
November	39.85	48.73	43.25	43.94	63½	29	34½	4.11	13.08	29.793	29.736	29.785	29.771	30.109	29.213	.896	.179	
December	32.52	42.26	35.88	36.88	61	19	45	5.66	14.58	30.040	29.992	30.012	30.015	30.462	29.292	1.170	.213	
Annual means	50.15	60.74	53.21	51.71	95	-1	96	5.57	16.85	29.890	29.845	29.870	29.868	30.526	29.096	1.430	.167	
Winter	30.28	38.51	33.95	31.25	68½	-1	69½	6.63	13.69	29.961	29.925	29.959	29.949	30.526	29.285	1.211	.230	
Spring	46.77	58.33	49.89	51.66	88	16	72	6.52	18.93	29.835	29.780	29.816	29.810	30.386	29.096	1.290	.177	
Summer	70.31	80.55	71.52	74.13	95	51	44	4.31	18.23	29.832	29.801	29.810	29.814	30.212	29.505	.707	.093	
Autumn	52.18	63.36	56.22	57.25	88	29	59	4.60	13.75	29.897	29.847	29.878	29.874	30.452	29.213	1.239	.163	
For ten years	49.74	60.05	53.20	51.33	100½	-5½	106	5.61	15.19	29.892	29.853	29.877	29.874	30.704	28.884	1.820	.155	

Meteorological Observations—Continued.

1861.	Relative Humidity.				Force of Vapour.						Clouds. Tenths of sky covered.		Winds.		Dew-point.									
	7 A.M.	9 P.M.	Max.	Min.	7 A.M.	9 P.M.	Mean.	Max.	Min.	Rain and melted snow.	No. of days on which rain or snow fell.	7 A.M.	9 P.M.	Mean.	Monthly resultant; No. of times in 1000.	7 A.M.	9 P.M.	Mean.	Max.	Min.				
Months.	P. c.	P. c.	P. c.	P. c.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.														
January . .	80	72	81	100	40	128	144	145	139	.241	.031	4.620	13	6.9	6.5	4.7	6.0	N. 52° 12' W., 375	22.43	25.73	29.59	24.58	39.6	—5.5
February . .	75	52	70	100	25	158	169	186	171	.375	.023	2.121	9	5.4	6.6	5.5	5.8	S. 77° 6' W., 354	26.56	27.89	29.67	28.01	51.1	—13.8
March . .	69	48	66	95	21	175	182	185	181	.479	.051	3.903	9	6.1	6.1	4.8	5.7	N. 73° 37' W., 328	28.41	28.65	30.58	29.21	57.8	3.4
April . .	67	42	65	95	22	231	226	259	238	.620	.109	4.150	9	5.0	6.1	4.7	5.3	N. 73° 20' W., 177	36.41	35.98	39.15	37.19	60.1	29.3
May . .	63	45	63	100	18	282	281	297	285	.594	.069	6.210	13	4.2	5.5	3.9	4.5	N. 72° 45' W., 237	42.15	41.78	43.47	42.47	63.9	10.3
June . .	66	52	70	94	19	475	512	530	505	.813	.112	4.485	15	6.1	6.1	3.9	5.4	S. 51° 52' W., 178	56.69	58.75	60.01	58.49	73.1	26.3
July . .	71	48	72	97	32	578	640	679	667	.819	.281	2.826	14	5.2	6.1	5.9	5.7	S. 58° 43' W., 368	62.56	60.36	62.62	61.85	73.3	43.6
August . .	83	60	79	92	34	602	608	612	607	.841	.266	2.861	12	7.0	6.4	5.0	6.1	S. 85° 55' E., 088	63.60	63.77	64.20	63.89	74.1	44.6
September . .	83	60	79	97	42	476	516	532	508	.770	.279	4.976	6	6.1	6.1	3.8	5.4	S. 75° 28' W., 181	56.94	59.15	59.90	58.66	71.4	43.2
October . .	81	60	76	97	33	373	415	410	399	.731	.122	3.597	10	7.0	6.1	4.8	6.0	N. 75° 10' W., 211	48.65	51.13	51.07	50.38	69.9	22.7
November . .	78	58	71	96	32	199	210	206	205	.523	.099	4.613	11	5.2	6.7	5.2	5.7	N. 68° 12' W., 324	33.45	33.90	31.01	33.81	60.3	18.1
December . .	80	62	78	95	23	155	175	173	168	.390	.069	2.016	4	6.0	5.6	3.3	5.0	N. 74° 3' W., 353	25.90	29.49	29.80	28.73	52.1	10.4
Annual means	75	55	72	100	18	319	332	343	331	.841	.023	46.411	125	5.9	6.2	1.6	5.5	N. 81° 41' W., 239	42.07	43.05	44.29	43.11	74.1	—13.8
Winter . .	78	63	74	100	25	139	151	155	148	.375	.023	10.015	30	6.2	6.7	5.0	6.0	N. 65° 37' W., 354	24.22	26.20	26.42	25.61	51.1	—13.8
Spring . .	66	45	65	100	18	229	231	247	236	.594	.051	14.293	31	5.1	5.9	4.4	5.1	N. 78° 18' W., 254	35.67	35.37	37.83	36.29	63.9	3.4
Summer . .	74	53	74	97	19	552	553	574	560	.841	.142	10.175	41	6.1	6.2	4.9	5.7	S. 61° 23' W., 156	60.95	60.96	62.29	61.40	74.1	26.3
Autumn . .	81	59	75	97	32	349	380	383	371	.770	.099	13.186	27	6.2	6.3	4.6	5.7	N. 76° 25' W., 201	46.36	48.16	48.34	47.62	71.4	18.1
For ten years .	76	56	72	100	13	326	343	347	339	1.055	.013	44.861	126	5.9	6.0	4.4	5.4	N. 75° 37' W., 217		43.67			79.7	—16.5

A Comparison of some of the Meteorological Phenomena of the year 1861 with those of 1860, and of the ten years from 1852 to 1861 inclusive, at Philadelphia, Pa.

Lat. $39^{\circ} 57\frac{1}{4}'$ N. Long. $75^{\circ} 10\frac{1}{4}'$ W. from Greenwich. Height of barometer, 50 feet.

	1861.	1860.	10 YEARS.
THERMOMETER.			
Highest	95° on July 8	95.5° on July 20	100.5° on July 21, 1854
Mean of warmest day	87.8 " " 8	87.7 " " 20	91.3 " " 21, 1854
Lowest	-1.0 " Feb. 8	1.0 " Feb. 2	-5.5 " Jan. 23, 1857
Mean of coldest day	+7.8 " Jan. 13	9.2 " " 2	-1.0 " " 9, 1856
Mean daily oscillat'n	16.85	17.12	15.19
" range . . .	5.57	5.65	5.61
Means at 7 A. M. .	50.15	49.39	49.74
" 2 P. M. . .	60.74	60.35	60.05
" 9 P. M. . .	53.24	52.61	53.20
" for the year	54.71	54.12	54.33
BAROMETER.			
Highest	30.526 ins. Jan. 23	30.418 ins. Dec. 14	30.704 ins. Jan. 23, 1853
Lowest	29.096 May 27	29.099 Feb. 18	29.884 Apr. 21, 1852
Mean daily range .	.167	.143	.155
Means at 7 A. M. .	29.890	29.882	29.892
" 2 P. M. . .	29.845	29.833	29.853
" 9 P. M. . .	29.870	29.862	29.877
" for the year	29.868	29.859	29.874
FORCE OF VAPOUR.			
Means at 7 A. M. .	.319 inch	.311 inch	.326 inch.
" 2 P. M. . .	.332	.321	.343
" 9 P. M. . .	.343	.329	.347
" for the year	.331	.320	.339
RELATIVE HUMIDITY.			
Means at 7 A. M. .	74.8 per cent.	74.7 per cent.	76.2 per cent.
" 2 P. M. . .	54.9	54.0	57.6
" 9 P. M. . .	72.5	70.7	72.5
" for the year	67.4	66.5	68.8
Rain and melted snow, amount .	46.414 inches	45.400 inches	44.864 inches
No. of days on which rain or snow fell	125 days	131 days	126 days
Prevailing winds .	N. $81^{\circ} 41'$ W. .239	N. $79^{\circ} 43'$ W. .219	N. $75^{\circ} 37'$ W. .217

BIRTHS, MARRIAGES, AND DEATHS.—The present report comprises the tabulated returns of the births, marriages, and deaths for Philadelphia during 1861, and the first, for an entire year, under the registration law of July, 1860.

This law having been in operation only eighteen months, no very important results can as yet be expected; still, enough has been accomplished to warrant the declaration, not only of its popularity, but of its permanent success as a statute second to none other in interest, where the great and vital questions of health, life, happiness, and prosperity of a community are involved.

It is not, however, to be disguised, that this benign law, like many other well-designed plans to promote the public welfare, has, to a limited extent,

met with opposition, while its terms by others have been acknowledged with a bad grace.

Among the clergy may be found those, who, by their delinquency in the observance of its provisions, show their utter disregard for a wholesome sanitary law, and their want of reflection as to the inestimable value of a system of vital statistics, which, in accordance with the opinion of those who have realized its benefits, "is looked upon as the greatest boon that an enlightened government could confer upon the people."¹

Several clergymen absolutely declined to conform to the law, until threatened with prosecution, and others, again, evinced their indifference to its provisions by neglecting to furnish the items of information called for in the blank schedules sent them.

Nor is our own profession altogether exempt from the charge of opposition and unwillingness to comply with the provisions of the law.

It would be almost a work of supererogation to expatiate upon the importance of registration. When full and complete returns shall be secured, and the field of observation extended, then will its value be better appreciated.

The Hon. John R. Bartlett, Esq., Secretary of State for Rhode Island, in presenting his report to the legislature, makes the following appropriate remarks.

"The importance of a complete registration is now greater than ever. When the present war is over, and the widows and children of those who have laid down their lives in defence of their country apply for pensions and bounty lands, the registration returns must be resorted to for the evidence required by the government, of marriages and births. So in the distribution of property of deceased persons, these returns are of the utmost importance. Had our present admirable system of registration of births, marriages, and deaths, been in operation during the war of the revolution, and that of 1812, some hundreds of thousands of dollars would have been saved to the people of this State, and hundreds of families, which for years struggled in adversity, would have been made comfortable during their lives. Already these records have been resorted to, to prove marriages, where parties have been killed in the existing rebellion, whose families have applied for pensions."² With equal propriety these remarks will apply to our own registration law. Already have applications been made at the office, for transcripts from the registry to prove the marriage of deceased soldiers as well as to prove their death.

BIRTHS.—The number of births returned and registered for the year according to the above table has been seventeen thousand two hundred and seventy-one (17,271). This is the largest annual return ever made for Philadelphia, and is no doubt a closer approximation to accuracy than hitherto obtained.

The deaths for the year have been 14,468. The excess of births, therefore, over the deaths, has been 2803. This excess, amounting to 19 per cent., is considered to be the natural annual increase of the population.

The births averaged for each day throughout the year forty-seven and one-third ($47\frac{1}{3}$).

The male births were 9008, the female births 8263, an excess of male births equal to 9 per cent., or as 109.7 males to 100 females.

¹ Speech of Lord Elcho, House of Commons, 1854.

² Rhode Island Register Report, 1860. Submitted to legislature December, 1861.

TABLE 1.—Table of Births under the new Law of Registration, for the year ending December 31, 1861, with the Wards, Sexes, and Colour designated, together with the Percentage of Births to Total Births, and Ratio of Births to Population of each Ward.

Months.	Births.		Black.		Stillborn.		Twins.	Triplets.	WARDS.																										
	M.	F.	M.	F.	M.	F.			1	2	3	4	5	6	7	8	9	10	11																
January .	844	658	9	17	39	27	12	..	93	87	66	69	36	36	58	29	33	45	72																
February .	795	679	12	12	20	27	16	16	85	78	51	61	40	40	61	32	35	50	53																
March .	841	721	15	14	26	24	24	..	91	80	56	59	37	36	52	39	34	49	46																
April .	728	595	21	9	39	26	12	..	111	54	41	63	33	25	52	20	25	40	48																
May .	652	634	10	7	27	17	16	..	89	48	32	43	24	27	49	32	40	43	47																
June .	662	683	14	8	26	20	14	..	88	68	38	48	48	40	53	47	43	41	37																
July .	792	703	11	17	38	20	13	1	100	68	57	56	35	35	72	39	33	49	36																
August .	761	728	8	20	31	26	13	..	116	68	37	48	45	43	70	31	51	41	56																
September .	729	711	14	12	33	17	10	..	97	62	42	51	51	41	60	38	50	43	46																
October .	702	716	10	12	31	21	11	..	109	65	42	61	27	29	80	36	36	49	40																
November .	757	696	12	16	23	18	9	..	111	69	45	49	36	31	78	45	45	57	45																
December .	742	736	8	18	22	20	12	..	112	62	39	66	28	43	80	38	42	41	61																
Total . . .	9008	8263	147	162	364	266	162	2	1211	789	552	677	432	419	772	426	470	548	587																
Population of each ward .																					16,681														
Percentage of births to total births .																					3.10														
Ratio of births to population .																					28.41														
																				WARDS.				WARDS.				WARDS.				Total.			

The ratio of births to population, fixing the population at the census returns for 1860, which is 565,529 would be one in every 33 persons living.

This ratio is greater than that of Massachusetts or Rhode Island for 1859, and something less than Boston for the same year.

The births for each month arranged according to the different seasons of the year will give the following result :—

Months.	Births.	Months.	Births.	Months.	Births.	Months.	Births.
December . .	1478	March	1568	June	1345	September . .	1440
January . . .	1502	April	1323	July	1495	October	1418
February . . .	1474	May	1286	August	1489	November . . .	1453
	<u>4454</u>		<u>4177</u>		<u>4329</u>		<u>4311</u>

According to this arrangement the winter season gave the greatest number of births, while the three spring months gave the least, but were the most prolific in conceptions.

The greatest number of births occurred in March, the least in May.

The highest number of births returned for any one ward was 1229, from the 19th, which has the largest population, numbering 38,828. The next highest was from the 1st ward, returning 1211 out of a population of 30,886. The 15th ward with a population of 32,091 gave 1068 births.

The lowest number of births recorded for any one ward, was 419, from the 6th, having the smallest population, viz. 14,482.

The following table gives the proportion of births by percentage in each ward, to the whole number of births as compared with the proportion of deaths in each ward to the whole mortality.

WARDS.	Per cent. of births.	Per cent. of deaths.	WARDS.	Per cent. of births.	Per cent. of deaths.	WARDS.	Per cent. of births.	Per cent. of deaths.
1	6.43	6.05	9	2.72	2.47	17	5.51	5.72
2	4.56	5.24	10	3.10	2.92	18	3.46	4.12
3	3.13	2.77	11	3.39	3.13	19	7.11	7.50
4	3.91	4.70	12	3.09	2.51	20	6.05	5.59
5	2.50	3.38	13	3.02	2.74	21	2.69	2.29
6	2.43	1.98	14	4.35	2.94	22	3.03	1.71
7	4.46	5.07	15	6.18	5.31	23	3.68	3.00
8	2.40	2.96	16	3.84	3.66	24	4.88	3.38

The proportions as given in this table of comparisons between the percentage of births and the percentage of deaths, present a very different variation in some instances to what should be expected. In the 8th ward, which I have in this report designated the healthiest, the percentage of deaths exceeds that of the births, while in the 17th ward, the most unhealthy, the percentage of births is nearly equal to that of the deaths. The like variation prevails in the 19th ward.

The 24th, 22d and 14th, present the greatest contrast between the births and deaths, in favour of the former.

In the remainder of the wards the percentages do not vary to any great extent. The preponderance, however, being on the side of the births. Births are said to indicate the material prosperity of a community, as known by its numerical growth; according to the above table, there is an indication of diminution of material prosperity in eight of the wards.

It would be altogether conjectural, in the present incipient state of our returns, to assign any special reason for what might be looked upon as

contrary variations in the figures of some of the healthy wards, or to attempt an explanation for the limited births in these wards. It is satisfactory, however, to know that, in the aggregate, the increase of our population over the deaths by births has been 19 per cent.

The number of births of children of colour amounted to 309. The sexes were, 147 males, and 162 females, an excess of 10.30 per cent. of the latter; a higher rate than among the white births.

In the births returned, there were 551, in which the location or name of the wards was not given.

There were returned 162 cases of twins and two cases of triplets.

The still-births amounted to 630. The excess of males over females, which was 98, equal to 36.84 per cent., is as remarkable as it will be unaccountable.

MARRIAGES.—In Table II. will be found the marriages registered during the year, with the ages of the parties.

TABLE II.—*Ages of Parties Married in the City of Philadelphia and Registered for the year ending Dec. 31, 1861.*

		AGES OF WOMEN.									TOTAL OF THE MEN.	PER- CENTAGE OF GROOMS.
		Under 20.	20 to 25.	25 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	Age not given.		
AGES OF THE MEN.	Under 20	15	1	..	..	..	..	..	..	..	16	0.36
	20 to 25	659	826	98	19	..	..	..	..	8	1610	36.47
	25 to 30	208	680	349	79	5	1	..	..	11	1333	30.17
	30 to 40	60	258	261	178	29	1	..	..	2	789	17.86
	40 to 50	8	36	62	94	45	..	..	..	2	247	5.59
	50 to 60	1	6	6	28	30	4	1	..	..	76	1.74
	60 to 70	..	1	3	6	4	7	..	..	..	21	0.47
	70 to 80	..	..	..	..	2	..	2	..	..	4	.09
	Age not given	2	4	2	..	..	..	..	..	313	321	...
TOTAL OF WOMEN		953	1812	781	404	115	13	3	..	336	4417	...
PERCENTAGE OF BRIDES		21.34	41.04	17.67	9.14	2.60	0.29	.06	..	..	..	...

This table is arranged in order to show the number of marriages where the parties are of the same or different quinquennial periods of life.

The number of marriages solemnized for 1861 have been 4417.

Of these, 953 or 21.34 per cent. of the brides were under twenty years of age, and only 16 or .36 per cent. of the grooms were under age.

Of the brides between twenty and twenty-five, there were 1812 or 41.04 per cent., and of the grooms at the same period there were 1610 or 36.47 per cent.

Between twenty-five and thirty, there were 781 or 17.67 per cent. marriages of brides, and 1333 or 30.17 per cent. of grooms.

Between thirty and forty, there were marriages of 404 brides and 789 grooms.

There were four grooms between the ages of seventy and eighty, and three brides between sixty and seventy.

The most popular age for marriage in both sexes was between twenty and twenty-five. There were 41 per cent. of females and 36.47 per cent. of males.

Nearly two-thirds of all the females when married were under twenty-five years of age, and 80 in each hundred were under thirty.

The ages of 336 of the females and 321 of the males have been omitted in the returns.

This omission on the part of clergymen may be from carelessness (it can hardly be attributed to ignorance), but I am more disposed to charge it to indifference. If every clergyman would reflect upon the injustice that a neglect of a proper registration of marriages may entail upon the parties themselves, or, upon the rights of their posterity, they would be more careful to comply with the provisions of the law and more ready to make their returns.

In Table III. will be found a record of the nativity of the brides and grooms, whether American or foreign.

TABLE III.—*Number of Marriages in the City of Philadelphia Registered for the year ending Dec. 31, 1861, with Nativity of the Brides and Grooms.*

NATIVITIES.		BIRTHPLACE OF BRIDES.			TOTAL OF GROOMS.
		United States.	Foreign.	Not given.	
BIRTHPLACE OF GROOMS.	United States	2200	256	17	2473
	Foreign	380	1326	17	1723
	Not given	28	10	183	221
TOTAL OF BRIDES		2608	1592	217	4417

Of the whole number of persons married 5081 were born in the United States, equal to 57.51 per cent. and 3315 were born in foreign countries, equal to 37.52 per cent. The birth places not named occurred in the case of 438 persons that entered into wedlock.

Of the brides 2608 or 59 per cent. were born in the United States, and 1592 or 36 per cent. were of foreign birth, of 217 the birth places were not given.

Of the grooms 2473 or 55 per cent. were American born, while 1723 or 39 per cent. were born abroad. The place of birth was not given for 221.

The record shows, that in 2200 or 49 per cent. of the marriages both parties were Americans, and in 1326 or 30 per cent. both parties were foreigners.

In 380 instances, equal to 8 per cent., American women married foreigners, and in only 256 instances, equal to 5 per cent., did American men marry women born abroad.

DEATHS.—The following is a general summary of the mortality for the year as found in Table 4, and is arranged to present the deaths of the white and coloured population; the males and females; the adults and minors; the sexes, together with the number of deaths from disease, still deaths, old age, unknown, and external, or accidental causes.

General Summary of Deaths for 1861.

White	13,754	
Coloured	714	
Total		14,468
Males	7,582	
Females	6,886	
Total		14,468
Male minors or children	4,800	
Female " "	4,217	
Total minors		9,017
Male adults	2,782	
Female adults	2,669	
Total adults		5,451
Total		14,468
Deaths from registered diseases	13,063	
Deaths from stillborn	630	
Deaths from old age	203	
Deaths from unknown external and accidental causes	572	
Annual total of deaths from all causes		14,468

Under an act of the legislature of March 8th, 1860, for the registration of births, marriages, and deaths, for the city of Philadelphia exclusively, and which was initiated according to its provisions, July 1st, of the same year (1860), the number of deaths registered for 1861 have amounted to fourteen thousand four hundred and sixty-eight (14,468).

This is the highest number of deaths ever returned for our city during a single year, and I have every reason to believe is a more accurate record of our mortality than has before been presented.

In my report for 1858, I referred to the incompleteness of our tables of mortality, arising from defective returns under the health law, as it then existed, and suggested that proper allowance should be made for this imperfection. At the same time I stated the impracticability of obtaining more accurate returns, until a better system of registration should be established through legislative enactment. This desirable improvement has now

been secured, and I trust that hereafter the returns made through the registration department of the Board of Health, will be full and reliable.

By a comparison with the death returns for 1860, viz., eleven thousand five hundred and sixty-eight (11,568), it will be seen that there has been an unusual augmentation during 1861. The increase for the year amounts to twenty-nine hundred (2900), and is equivalent to 25 per cent. over those of the former year.

This large increase of deaths in our city, very naturally suggests the inquiry, to what cause or causes is it to be attributed?

It is due, in the first place, to the operation of the registration law, which enables us to secure more correct returns. One evidence in proof of this opinion may be gathered from the fact, that since the initiation of the registration law, death returns have been received weekly at the health office, from upwards of forty places of interment, located principally in the more distant suburbs, from which no returns had hitherto been received.

Another reason is, that formerly the dead taken out of the city for burial were not included in our bills of mortality. Under the present law, undertakers are required to furnish a certificate of death for registration, and receive in return from the health office a certified transcript from the record of said death, which certificate accompanies the body as the voucher, for the cause of death.

In addition, there has existed another, and a far more unmistakable cause for the large addition of deaths during the year. This will be found in the remarkable and protracted prevalence of no less than three epidemics simultaneously, to wit, scarlet-fever, smallpox and diphtheria.

For the entire year, and to an extent hitherto unknown in this city, throughout every section, from the most healthy and most pleasant rural districts, through every transition of location down to the very extremes of filthy and wretched homes in the more crowded and unhealthy wards, were these diseases to be found committing their deadly ravages. In some neighbourhoods they extended from house to house, carrying off two and three children of a family. They appeared to be uninfluenced by the seasons of the year, or the extremes of temperature.

Presenting distinct features in their symptoms, and unlike in their pathological conditions, yet in their origin they were, no doubt, connected by a mysterious bond of union. This union springing from and dependent upon some unknown distempered influence, familiarly known as an epidemic influence, either meteorological or terrene, or both, forming poisons which, through the intervention of a secret power, develops their peculiar effects upon systems already predisposed to disease; imparting to the blood, in one, smallpox, in another scarlet-fever, and in a third diphtheria.

"It has been a subject of frequent observation," remarks Dr. Wood, "that a certain epidemic tendency after continuing for several years, will be followed by another of a different kind, which in its turn will give way to the former tendency, or to a third different from either."¹ In the present instance, however, the prevailing epidemic influence has, in some respects, observed a modified course from the peculiarity noticed above. Three destructive epidemic diseases have simultaneously pervaded the same neighbourhoods, and even the same families.

It becomes an interesting question for pathological investigation into the laws governing the inception and progress of epidemics, whether these

¹ Wood's Practice, vol. i. p. 163.

several diseases owe their origin to the influence of specific poisons, in conformity with the prevailing sentiment of authors, or whether, according to a theory originating, I believe, with the late Dr. E. S. Barton, as to the origin of certain zymotic diseases, they too have no dependence upon special poisons, but are the result of certain combinations varying in their several definite proportions, of the two conditions, aerial and terrene, which constitute the epidemic influence that has been in active existence for several consecutive years in our city.

Dr. Wood remarks on this point, "Whether the epidemic influence is alone sufficient to produce smallpox, scarlatina and other contagious eruptive affections, which sometimes become epidemic, without the co-operation of the specific contagion is perhaps questionable. It is highly probable that it may be so; as these diseases occasionally occur epidemically without any known communication between the individuals first attacked, and others previously affected." Again, he says, "Sometimes the epidemic influence predisposes to some one, especially of the exanthemata, as to smallpox on one occasion, measles on another, &c.; sometimes the tendency seems to be towards eruptive diseases in general."

This opinion is by no means at variance with the views of Dr. Barton, and concedes, in part, his theory.

It may prove of some degree of interest at the present time, when the aggregate mortality for the year has so far exceeded that of any former one to compare the death rate of one year with another for the past few years. For this purpose I have prepared the following statistical table of mortality; including the population, the deaths to population, and the deaths in each one thousand living, for eight consecutive years, commencing with eighteen hundred and fifty-four, when the city was consolidated, and embraced in its area the entire county.

To arrive at the aggregate population for each year, I have taken as a basis the 7th census return of the city and county, for 1850, which was set down as four hundred and eight thousand seven hundred and sixty-two (408,762). Computing the annual increase of our population to be $3\frac{1}{2}$ per cent., which is a fraction over the average, as furnished by the 8th census of 1860, but, in my estimation, rather below than above the actual standard, I have calculated the average increase on that apportionment for each successive year, including 1861.

Year.	Deaths.	Population.	Deaths to population.	Deaths to each 1000 living.
1854	11,815	469,059	1 in 39	25
1855	10,457	485,475	1 in 46	21
1856	12,334	502,466	1 in 40	24
1857	10,895	520,051	1 in 47	20
1858	10,697	538,252	1 in 50	20
1859	9,742	557,090	1 in 57	17
1860	11,568	576,587	1 in 49	20
1861	14,468	596,766	1 in 41	24
Aggregate	91,976	4,245,746	1 in 369	21
Average	11,497	530,718	1 in 46	21

This octuple calculation gives a mean of 11,497 deaths annually in an average population of 530,718.

It also makes the average of deaths to population during a period of eight years as 1 in every 46; while the average deaths for each thousand living, were twenty-one (21).

By exhibiting this table, I am able to demonstrate that while our returns of deaths for 1861, in point of numbers, certainly have been far above those of any former year, yet in proportion to population, they indicate rather a decline than an increase of mortality, when compared with two of the eight years, viz., 1854 and '56. The former giving 1 in 39, and the latter 1 in 40 of the population, whereas 1861 gave 1 in 41, although the aggregate number of death returns rates the highest.

The average deaths in each thousand living of the population, as furnished by this table is 21, and during these eight years the deaths ranged from 17 to 25. This, therefore, should be viewed as a fair average of our city mortality, provided the record is reliable.¹

In the 20th report of the Registrar-General of England, seventeen in each thousand living has been assumed as the natural proportion of deaths, and "all deaths exceeding that number are to be considered as unnecessary." To some extent this standard may be viewed as correct, provided the calculation is made from salubrious districts, which do not embrace within their limits large cities or numerous towns, as were the 64 districts selected from various parts of England, from which the above calculation was made.

In Rhode Island, the average of deaths to each thousand living for the period of seven years, was but thirteen.

In 1860 the deaths in a thousand were fifteen. In Massachusetts, for 1859, they were seventeen. In Scotland the rate is nineteen, and in England twenty two in each thousand.

In cities it will be found that the proportion will always be higher than in country districts, and, from causes that are continually pressing upon the population, producing unnecessary disease and premature death. Take as an example the city of Providence, one of the best regulated and healthiest cities in this country, although not one of the largest class in point of population, and it will be seen that the annual average of deaths is 20 in each thousand living.

This I believe should be considered, under favourable circumstance, a reliable average for cities, and I am confident that if proper attention were given by our municipal corporation for the correction and removal of those existing evils which produce sickness, and swell our bills of mortality, the death rate would compare with that of Providence.

In Boston, where great care is observed in carrying out the registration law, the deaths to one thousand living, during a term of nine years, ranged from 21 to 26. Our own city, therefore, in the past eight years, presents somewhat a more favourable range than Boston, being from 17 to 25 according to our mortality returns, for which, however, some allowance may have to be made for their completeness.

MONTHLY MORTALITY.—The following table furnishes the deaths for each month throughout the year. It shows the mortality of males and females, adults and children or minors (that is all under twenty), in separate columns.

¹ If the calculation be made according to the last census returns, it makes our death rate still more unfavourable, giving us 1 death in every 39 of the population.

Return of Deaths in each Month, showing the number of Deceased Males and Females, Adults and Children, for the year 1861.

1861.	Males.	Females.	Adults.	Children.	Total.
MONTHS.					
January	664	652	513	803	1,316
February	589	534	460	663	1,123
March	596	549	455	690	1,145
April	757	652	555	854	1,409
May	564	552	424	692	1,116
June	546	508	384	670	1,054
July	1,012	846	495	1,363	1,858
August	742	665	424	983	1,407
September	510	474	383	601	984
October	589	529	464	654	1,118
November	488	419	435	472	907
December	525	506	459	572	1,031
	7,582	6,886	5,451	9,017	14,468
	14,468		14,468		

July gave the highest number of deaths, 1858, or a fraction less than 13 per cent. of the entire mortality. The three summer months, June, July, and August, contributed 4,319 of the deaths, equal to nearly 30 per cent. of the annual mortality.

With two exceptions, the deaths in every month exceeded one thousand. September gave 984, while November, the lowest, gave 907.

The highest number of deaths of minors was in July, 1363. August furnished 983, and June 670. These three months contributed 33.44 per cent. of all the mortality among minors.

The excess of deaths of males over females is shown to be 696. That of children over adults; 3566.

ANNUAL MORTALITY.—Of the deaths reported for the entire year (see Table 4), seven thousand five hundred and eighty-two (7582) were males, and six thousand eight hundred and eighty-six (6886) were females: this gives, as usual, the excess to the number of males, equal in this instance to 10 per cent.

Of the deaths under twenty years of age, classed as minors, there were nine thousand and seventeen (9017); those beyond twenty, or, adults, amounted to five thousand four hundred and eighty-one (5481); showing an excess of deaths in children equal to 64.51 per cent. over those in adults.¹

The mortality in children under five years of age was seven thousand four hundred and six (7406), and when compared with the entire mortality for the year, is equivalent to fifty-one (51) per cent., while the number under ten years was eight thousand four hundred and twenty-four (8424), or 61 per cent. of the whole mortality.

This is an appalling item in the record for 1861, viz., that children under ten years of age should contribute 61 per cent., more than one-half the

¹ The still-born children, amounting to six hundred and thirty, are included in the above deaths.

amount of deaths! This excessive mortality, I apprehend, is not sufficiently appreciated by our profession, or adequately understood by our municipal authorities.

This destruction of life in helpless infancy has attained such gigantic proportions as to demand from the profession of medicine a careful and thorough investigation into the causes which are productive of such an unnecessary amount of disease and death in children of tender years; and from the civil authorities, energetic and systematic efforts in the adoption of adequate measures for the removal of the various sanitary evils detrimental to health, by the enforcement of a stringent sanitary police reform. That something more is required than is now being accomplished either by our Board of Health or corporate authorities for the prevention of disease in our city is too evident to require a single argument. The statistical fact I have presented of the fearful mortality among children is enough. Volumes of reasoning could not be more convincing.

If the inquiry is made, what is to be done? I answer, everything. The first decided movement is yet to be taken, in the direct line of sanitary reform, by our Councils. When have they ever ordered an inquiry either by a committee or commission, into the sanitary condition of our city? The City Surveyor, the Chief Engineer of the Water Department, the Commissioner of Highways, and the Board of Health, through their valuable and highly interesting annual reports to the Mayor and Councils, have adverted in emphatic language to numerous sanitary defects—while the Mayor, in a spirit befitting his office, with a prompt and cheerful devotion to all the interests of the city, has been careful to direct their attention to those recommendations which appertain to the improvement of the health of the city. How far these vital interests have received that attention which their importance deserves—let the proceedings of Councils answer.

It is deeply to be regretted that the sanitary police of cities is not or will not be understood by corporations. Nor is it less to be regretted, that the occurrence of a high rate of infant mortality, year after year, one of the direct results of sanitary neglect, should have received no attention whatever from our city corporation.

No expense should be regarded as useless or extravagant, that contemplates the preservation of the health of a community. It is no wise economy to overlook the requirements of public hygiene. The neglect of it is sure to entail a burden upon the corporation. It introduces disease, and ends in death. It retards industry, encourages idleness, induces poverty, and invites both social and moral degradation.

On the other hand, the inculcation and enforcement of a system, that will investigate sanitary evils, and correct the abuse of the laws of health and life, will not only protect the health of a community, but enhance their intelligence, increase their wealth, and add to their happiness, in a social, moral, and physical relation.

If it be regarded as expedient for the security of the peace and good order of society, to establish a well regulated and competent police force; of how much more real value is it to the interests of a community to secure and enforce systematic health police regulations, in order to guard, as far possible, the health of citizens, and to search out and cause to be arrested and removed, all nuisances of a public or private nature, that are prejudicial to health. It is high time that the distinguished philanthropy of our city, had turned its active benevolence into the long neglected channel of public hygiene.

Wise and judicious municipal laws are being enacted to promote our commerce, to protect our property, to maintain our rights, to regulate business, to preserve order, to detect dishonesty, and to secure amusement for the pleasure seeker—but how seldom has city legislation been drawn to the enactment of ordinances for the promotion and better preservation of the health of the people—a field of inquiry which underlies every other interest. To take care of the health is not only a moral obligation but a sacred duty which every corporation owes its citizens.

MORTALITY IN WARDS.—A very interesting and instructive comparison will be found in the following table of the deaths in each ward, with those of one ward with another; going to show the unhealthiness of some sections of our city with the healthiness of other sections.

Mortality in each Ward, with the Population (according to the late Census), the ratio of Deaths to Population, the Percentage of Deaths in each Ward to the Total Mortality, and Deaths in each thousand of the Population. Also the Deaths from unknown Wards, from the Almshouse and from the Country.

WARDS.	Population last census.	Deaths.	Deaths to population.	Per cent. of deaths to total mortality.	Deaths in each thousand of population.
First	30,886	875	1 in 35	6.05	28.22
Second	29,123	758	1 " 38	5.24	26.13
Third	19,929	400	1 " 49	2.77	20.00
Fourth	23,461	681	1 " 34	4.70	29.17
Fifth	24,792	488	1 " 50	3.38	17.91
Sixth	14,882	286	1 " 52	1.98	19.06
Seventh	31,267	733	1 " 42	5.07	23.60
Eighth	27,770	427	1 " 65	2.96	15.81
Ninth	17,196	356	1 " 48	2.47	20.94
Tenth	21,849	422	1 " 51	2.92	19.18
Eleventh	16,681	452	1 " 36	3.13	26.58
Twelfth	16,681	362	1 " 46	2.51	21.29
Thirteenth	20,045	397	1 " 50	2.74	19.85
Fourteenth	24,258	426	1 " 56	2.94	17.75
Fifteenth	32,091	768	1 " 41	5.31	24.00
Sixteenth	20,067	529	1 " 37	3.66	26.45
Seventeenth	23,264	828	1 " 28	5.72	36.00
Eighteenth	20,441	596	1 " 34	4.12	29.80
Nineteenth	38,828	1,085	1 " 36	7.50	27.82
Twentieth	29,963	809	1 " 37	5.59	26.96
Twenty-first	17,159	332	1 " 51	2.29	19.53
Twenty-second	17,173	248	1 " 69	1.71	14.58
Twenty-third	23,985	434	1 " 55	3.00	18.08
Twenty-fourth	23,738	489	1 " 48	3.38	20.37
Unknown . . . .	.....	446	.....	.....	.....
Almshouse . . . .	.....	543	.....	.....	.....
From the country	.....	298	.....	.....	.....
Total for 12 mos. ....	.....	14,468			
Total population	565,529				
Ratio of deaths to population	.....	.....	1 in 39		

We have here the population of the several wards as given by the census for 1860; the number of deaths, the deaths to population, and the deaths

in each thousand of the population of the ward, together with the percentage of deaths in each ward to the total population for the year.

The highest mortality registered against any single ward was 1085. This was the 19th, with a population exceeding that of any other ward, amounting to thirty-eight thousand eight hundred and twenty-eight (38,828). This is not, however, the most unhealthy ward, rating the fifth in the line of descent from the most unhealthy, the deaths being 27.82 in each thousand of its population. The most unhealthy ward was undoubtedly the seventeenth (17th). This ward contains a population of twenty-three thousand two hundred and sixty-four (23,264), supplying eight hundred and twenty-eight (828) deaths, which is equal to 36 in every thousand of its population.

The eighteenth, the fourth, and the first, in the order I have placed them with the 17th and 19th, all of them crowded and defective in sanitary improvements, are by far the unhealthiest group in the twenty-four wards of the city. They have contributed 28 per cent. of all the deaths for the year.

The seventeenth is a densely crowded ward, located in a section of the city known formerly as West Kensington. Its population is made up chiefly of the working classes. Many of these people are poor, live in rooms badly ventilated and badly located in narrow alleys and contracted courts, with barely breathing space for room; while many of the tenements are miserably constructed for a proper supply of air and light, and are mostly over-crowded. The streets and other thoroughfares in this ward are generally damp and filthy with foul gutters, and a large portion of the inhabitants are by no means remarkable for habits of cleanliness.

By reference to the table of mortality for the year, it will be found that three hundred and thirty-seven (337) of the deaths in this ward, equal to 40.70 per cent. were from zymotic or epidemic, in other words, preventable or unnecessary diseases. Classed among these deaths were ninety-nine (99) from scarlet fever; ninety-seven (97) from smallpox; forty-four (44) from diphtheria; forty (40) from cholera infantum; thirty-three (33) from marasmus; forty-seven (47) from convulsions, and fifty-one (51) from debility.

The lowest number of deaths registered for any one ward was two hundred and forty-eight (248), in the 22d containing a population of seventeen thousand one hundred and seventy-three (17,173). It is an open country or rural district, a large territory, with a sparse population, and this population one among the smallest, making the fifth in the upward scale in numbers, and rates the healthiest from every stand point in which it may be viewed. In the table, it contributes only 1 death in every 69 of its population; 1.71 per cent. only of the entire mortality, and not more than 14.58 in every thousand of its own population. This ward embraces within its boundaries the beautiful and attractive suburban village of Germantown, with its elegant mansions and cottage residences, its handsomely embellished gardens, its rich meadows, its shaded parks and spacious pleasure grounds. Thus rendering it, connected as it is by easy and rapid railroad conveyance to the business marts of the city, a favourite and healthy rural residence.

The ward containing the smallest population is the sixth, which numbers only fourteen thousand eight hundred and eighty-two (14,882), is located in the old city proper, and has a Delaware front extending from Chestnut up to Vine Street. It returned two hundred and eighty-six (286) deaths,

equal to nineteen (19) in every thousand of its population. This ward in former years was densely populated and contributed its full share of deaths. The intrusion of places of business has driven many families beyond its boundaries, which accounts for its limited population and deaths; at the same time it will be observed that the proportion of deaths to population is not as favourable as some other wards centrally located. The fifth, an adjoining ward, having as deep a front on the Delaware, and containing a population of twenty-four thousand seven hundred and ninety-two (24,792), gave but 488 deaths, which is 17.91 in each thousand of its population.

The eighth ward, extending from Spruce to Chestnut Street, and from Seventh Street to the Schuylkill River, with a population of twenty-seven thousand seven hundred and seventy (27,770), supplied only four hundred and twenty-seven (427) deaths, or (15.81) for every thousand of its population. Out of all the city or built up wards, considering its location, the eighth appears to be the most favourable for health. It contributed no more than six deaths from smallpox; thirteen from scarlet fever; five from diphtheria; nine from typhoid fever; and twenty-one from cholera infantum. The sanitary condition of this ward, superior I believe to any other, is to be accounted for by its ample domiciliary conveniences, the absence of small alleys and confined courts containing crowded and filthy residents, together with the observance of care to prevent the accumulation of kitchen and other offal in the yards, gutters, and streets.

The fourteenth ward, bounded by Vine and Poplar, Tenth and Broad Streets, may also be placed with those wards which enjoy a good share of health and return only a limited number of deaths.

Enough probably has already been gathered from the statistics of this table, in order to illustrate the comparative difference in mortality between those wards enjoying the benefits arising from a more or less improved sanitary condition, and others less favoured, or, which are wanting in many of those important arrangements which exercise almost a controlling influence over the health of a neighbourhood.

A proper attention to the hygiene of our city by the civil authorities, would in my judgment not only lessen many of the moral evils prevalent in the community, but would reduce the weekly bills of mortality 25 per cent. or even more, and save hundreds of lives annually, that are now lost through the fatal influence of preventable diseases.

Table V., Class 1. ZYMOTIC DISEASES.—Those which have an epidemic, endemic or contagious character and originating from specific or local causes which are removable. Hence, the diseases named here are in a great measure preventable, are unnecessary, and are a manifest source of premature death in our community, especially with the infant population.

This class I consider to be the most important of all the classes, as affording an index to the salubrity or unhealthiness of the year. It will be the touchstone in every city of the excellency or neglect of sanitary regulations. The deaths in 1861 under this head have amounted to four thousand and sixty-four (4,064). Comparing this number with those of the same class for 1860, which were twenty-two hundred and seventy-five (2,275), I find an increase of seventeen hundred and eighty-nine (1,789), equivalent to 78.59 per cent.

This extraordinary increase may be covered by the prevailing epidemics, scarlet fever, smallpox, and diphtheria from which there have been recorded twenty-four hundred and fifty (2,450) deaths, which are equal to 60.30 per cent. of all the deaths from zymotic diseases.

This mortality holds a relation to the total of deaths for the year of twenty-eight per cent., or, as one in every three and a half.

It is from diseases belonging to this class that the life of infants is rendered so precarious, and to which we may legitimately ascribe a large majority of the deaths among children in our city.

If I adopt the views entertained by an eminent statistician and sanitarian of New York, that convulsions, dropsy of the head, marasmus, pneumonia, phthisis, inflammation of stomach and bowels, serofula and still-births, are due to internal domiciliary circumstances "which we can absolutely prevent," I could swell the number of deaths from diseases of the order over which we have "entire control" and should not exist, twofold. I am not, however, so thoroughly convinced as to the correctness of the opinion that the diseases above enumerated, do depend exclusively upon causes that can be eradicated. That several of them may occasionally be produced, and others, perhaps all of them be greatly aggravated through the influence of internal domiciliary circumstances, and the entire neglect of public sanitary improvement I am ready to concede, but I take issue to the assertion that pneumonia, phthisis, convulsions, dropsy of the head, inflammation of the stomach and bowels, and still-births may be exterminated by the enforcement of sanitary laws and ordinances.

Without the addition of these diseases, many of which are peculiar to infancy, the record reveals the startling fact that three thousand four hundred and seventy-four (3474) or 85.45 pr. et. of the deaths from zymotic diseases were selected from that interesting and tender class of the community—the infants and children of our family circles. Of this number, three thousand three hundred and five (3305) had not reached their tenth year.

To make this class more satisfactory to the reader and to show the periods of the year when the diseases belonging to it are most prevalent, I have divided it into four quarterly tables.

By this analysis it will be seen that the third quarter, or the three months July, August, and September, have furnished the highest mortality, amounting to 1533, and that the fourth quarter, October, November, and December, gave the least, 663.

The heaviest mortality at any age was between two and five years, amounting to eleven hundred and seventy-nine (1179). That under one year reached nine hundred and twenty-two (922).

The facilities afforded by the registration law, enables me to introduce the names of those several wards or localities that have suffered most severely from this class of diseases. Nor will it be considered strange that those sections which contain numerous small, contracted, badly ventilated tenements—numerous blind courts and narrow alleys—streets imperfect in paving and drainage, oftentimes reeking with mud and other filth—sections fruitful in every variety of pestilential causes and a large part of the population of which are by no means remarkable for habits of cleanliness, and are overcrowded in their dwellings—furnish the infant victims which so largely swell our bills of mortality.

The following tables will furnish at a glance the population, the mortality from zymotic diseases, and the mortality from all diseases in each of the twenty-four wards as well as a comparison of one ward with another. The first table presenting those wards which appear to be unhealthy or where the deaths have been most numerous; the second table giving those which may be considered healthy where there have been but few deaths.

TABLE A.—*Wards in which Zymotic or Epidemic Diseases were prevalent and deaths over 150.*

WARDS.	Population.	Total deaths.	Deaths from zymotics.
1	30,886	875	247
2	29,123	758	237
4	23,461	681	171
7	31,264	733	184
11	16,681	452	151
15	32,091	768	203
16	20,067	529	183
17	23,264	828	337
18	20,441	596	233
19	38,828	1085	347
20	29,963	809	270
	296,072	8114	2563

TABLE B.—*Wards in which Zymotic or Epidemic Diseases have not prevailed extensively, and where the deaths were under 150.*

WARDS.	Population.	Total deaths.	Deaths from zymotics.
3	19,929	400	99
5	24,792	489	120
6	14,882	286	58
8	27,770	427	71
9	17,196	356	66
10	21,849	422	101
12	16,681	362	125
13	20,045	397	109
14	24,258	426	110
21	17,159	332	108
22	17,173	248	58
23	23,985	434	114
24	23,738	489	114 ¹
	269,457	5067	1253

The first table A embraces eleven wards, the first, second, fourth, seventh, eleventh, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, and twentieth. In these wards, with an aggregate population of two hundred and ninety-six thousand and seventy-two (296,072) there occurred eight thousand one hundred and fourteen (8114) deaths, of which number twenty-five hundred and sixty-three (2563), or 31.58 per cent. were from zymotic or epidemic diseases.

The second table B contains the remaining thirteen wards, in which it will be seen that the death rate is much more favourable than that in the first table, particularly as regards zymotic diseases.

The population of these wards amounts to two hundred and sixty-nine thousand four hundred and fifty-seven (269,457) less than in the eleven wards of the first table, by twenty-six thousand six hundred and fifteen (26,615) or 9 per cent. while the entire mortality was only five thousand and sixty-seven (5067) less three thousand and forty-seven (3047) or 30 per cent. than in the eleven wards above enumerated, while the deaths from zymotic diseases were only twelve hundred and fifty-three (1253) or 51.10 per cent. less than those in the former eleven wards.

This shows conclusively that during the year 1861 the eleven wards of the first table have contributed the largest number of deaths from zymotic diseases, and therefore have been the *most unhealthy*.

These tables further illustrate the comparative health of the several sections of the city. Let it be remembered also that the increased mortality which I am now discussing is the unnecessary mortality alluded to by the Registrar General of England, the product of preventable diseases, the result of causes almost if not entirely within our control or removable by human agencies.

A visit for sanitary inspection through some of the eleven wards where the excess of deaths has occurred would furnish abundant evidence of their

¹ The record gives this ward 178, but 64 of these were from almshouse, making those in the ward only 114.

relation to contagious and infectious fevers and other diseases of an epidemic and pestilential character.

Where we find imperfect sewerage and drainage, with filthy streets and gutters; domicils crowded, faulty in construction, unventilated, low; damp cellars, and basement residences swarming with an over-crowded population deficient in morality and cleanliness, living in the midst of atmospheric impurities, with a limited supply of sun light, subsisting upon food of an inferior quality and many of them large consumers of unwholesome liquors, what less can be expected under such unfavourable circumstances, where the laws of health are daily violated and where the atmosphere is poisoned, than a large amount of zymotic disease and a heavy bill of mortality.

Unfortunately the innocent are made to suffer for the guilty. These fruitful sources of disease too frequently confine their influence to helpless infants and children, who are thus made the innocent victims of the faults and follies, or, the vices of indifferent and degraded parents. It is in such poisoned vicinities that death invariably reaps an abundant harvest.

I would not, however, be thought to convey the impression that the infant mortality of our city is confined wholly to the indigent, thriftless, degraded, and vicious families located in our crowded and more unhealthy wards. While this class of our population from circumstances incident to their manner of living furnish a heavy proportion of infant mortality, it is a sad reflection that there are errors committed in high places in regard to diet, clothing and exercise; that amongst the better provided for in the community, even where wealth abounds and where there is neither want of education nor intelligence or other favourable surroundings, the ratio of infantile mortality is far higher than it should be. Indiscretion in nursing, in feeding, in dressing, and in airing infants and children, too often prepare the way for the inception of disease and its fatal termination.

It is well known to those who have been familiar with the prevailing diseases for the past several years that we have been passing through a scarlet fever cycle. Without any interval of exemption from this epidemic, or any mitigation of its malignant character, but on the other hand a marked increased fatality of it, diphtheria made its appearance in our midst about February, 1860, and, according to the opinion of some, assumed the livery or was modified by the then prevailing epidemic; according to others, it was a form of scarlet fever itself unaccompanied by the eruption.

Dissenting, however, from these views, I have only to say, that diphtheria invaded our city in a highly malignant form, exhibiting the most distinctive and violent constitutional symptoms. In a very few months following the outbreak of this fatal disease, and before it or scarlet fever had reached their culminating points of fatality, smallpox, in October, 1860, was superadded. The year 1861 opened with these three prevailing epidemics; nor has there been any material mitigation of either disease throughout the entire year. On the other hand, there has been observed an occasional increase of the mortality, scarlet fever maintaining the ascendancy in the number of fatal cases.

The total of deaths assigned to these three diseases, for the year, has amounted to 2450, as follows: Scarlet fever, 1190; smallpox, 758; and diphtheria, 502; constituting altogether nearly four-fifths of the increase of deaths over those for 1860, and falling with peculiar violence and fatality upon our infant population.

DIPHTHERIA made its appearance in an epidemic form in the month of February, 1860, and from that time until the close of 1861 it prevailed to a greater or less extent in all parts of our city. Although sporadic cases had occasionally been met with since 1857, some of which proved fatal, yet there is no public record of a death from diphtheria until the month of February, 1860, when there were fourteen registered. An examination of the record for that month shows that the deaths from zymotic diseases had run up from seventy-six in January to one hundred and seven. Scarlet fever deaths were nearly doubled. What were the particular climatic changes which heralded this increase of epidemic influence I am at a loss to determine, there being nothing special in the meteorological data for that month.

In the month of March of that year the deaths from diphtheria were twenty-two (22); April, seventeen (17); May, twenty-three (23); June, seventeen (17); July, fourteen (14); August, thirty-five (35); September, twenty-six (26). In October they went up to sixty (60) and in November and December they averaged thirty-nine (39). January, 1861, opened with sixty-three (63) deaths; the following five months averaged thirty-seven (37), varying but little in each month until July, when they suddenly rose to sixty-three (63). The remaining five months of the year averaging thirty-seven (37) with only a slight variation.

The remarkable uniformity in the mortality for each of the ten months will not escape notice, much less the fact that during January, the coldest, and July, the warmest month of the year, the deaths from diphtheria doubled themselves, both months furnishing a like number of deaths.

It was not until July, 1860, when the registration law went into operation that any correct account could be presented of the location of particular diseases; but as I have already in a former report given the names of the wards where diphtheria was most active and proved most fatal during the last half of 1860, and as they differ in nowise from those recorded for 1861, I shall proceed to speak of the disease, the number of deaths from it, and its location and character, as it appeared in the latter year.

The whole number of deaths from diphtheria for the year 1861 were five hundred and two (502). Two hundred and fifty-four (254) males, and two hundred and forty-eight (248) females; these proportions do not favour the idea of its being more prevalent among females than males.

Four hundred and eighty-nine (489), or 95 per cent. of the deaths were minors, or, under twenty, and only thirteen (13) were adults; characterizing the disease as one peculiar to childhood. Of these deaths, four hundred and sixty-one (461), or 91 per cent., were under ten years, and three hundred and twenty-four were between two and ten years of age; coinciding with observations made elsewhere, of the particular period of infantile life most liable to an attack from this disease. Nine of the thirteen deaths in adults were under thirty, one was between sixty and seventy, and one was over seventy.

The disease has not been prevalent among children of colour; only seventeen (17), or 3.38 per cent., are charged to them.

The 1st, 17th, and 20th wards bear the heaviest mortality, averaging forty-four (44) each. The 6th, 8th, 10th, 21st, and 22d gave the least, the mean being six (6). From the remaining wards there was an approximate representation of deaths, as well in those which I have enumerated as healthy as in the more unhealthy wards. For example, in the 23d there were twenty-seven (27) deaths, and in the 14th, twenty-five (25) deaths,

these wards (the first named rural in the greater part) are rated as healthy, while in the 19th there were only twenty-nine (29), and in the 2d only twenty-two (22), whereas both of these wards contributed a heavy mortality from other zymotic diseases, and are among the most unhealthy in the list.

While I am of the opinion that diphtheria, like other epidemics, always shows a preference for those localities surrounded by unfavourable hygienic conditions, I am obliged to acknowledge that it has not been exclusively confined to similar localities since its appearance in our city.

As the above statistics prove, and as I have been an eye witness, this terrible disease was to be seen in some of our healthiest sections and in the abodes of refinement and wealth; in rural districts, remarkable for their salubrity, and under circumstances, and in families, where it would be difficult to discover tangible indications of an existing antihygienic condition of any kind whatever; and, as already shown, it has not been confined to any particular season of the year.

These peculiarities, however, are neither new nor confined to our city. In confirmation of this remark, I quote from Hart on Diphtheria as found in Slade's dissertation published in the *Am. Journ. of the Med. Sciences*, vol. xli. p. 396. Alluding to its appearance in England and France, he says:—

“It did not obey any known climatic or meteorological laws. It visited alternately the open hamlets of the rural departments, and the crowded courts of the great cities. It appeared to be equally independent of all atmospheric conditions. Was a theory formed that its intensity depended upon the solar influence, and that the heat of the summer months lent fresh force to its destructive attacks—soon it raged with greater violence in the winter months, and during the cold season—yet moderate temperature has not greatly abated its influence, and it has struck a blow here and there through all seasons.”

The same writer attempts to account for its prevalence in healthy localities, amongst the upper classes of society, and of these especially, the more luxurious in their habits, that, being zymotic in its nature, it tends to fasten upon those who are debilitated from previous disease, or whose constitutions are enfeebled by the depressing influences of luxury, indolence, and inactivity, together with the violation of physical and hygienic laws consequent upon the habits of fashionable life. It is among such, he says, that “diphtheria finds its victims pale and anæmic, or grossly sanguineous and unhealthily excited.”

The non-identity of diphtheria with scarlet fever, is, I apprehend, no longer a debatable question. The widely different character of the sequelæ of the two diseases, together with the “almost universal experience, that diphtheria does not protect from scarlet fever, nor, on the other hand, does scarlet fever form any defence against diphtheria,” are of themselves convincing arguments in favour of the distinctive characters of these two fearful epidemics. Again, that there prevails a striking similarity between diphtheria and scarlet fever, in many of their symptoms, is indisputable, and that diphtheria frequently prevails in conjunction with scarlet fever is also universally admitted. Nevertheless, every impartial and careful observer who has encountered both affections, must arrive at the conclusion that diphtheria is a specific disease.

Without any intention of entering into the history or treatment of diphtheria, in this report, I cannot avoid a brief allusion to the after effects, or

the sequelæ of this severe disease, particularly those which exert their power upon the nervous vitality. The peculiarity of the symptoms, is a form of paralysis, attacking especially, and almost invariably, the soft palate, the muscles adjacent thereto, extending frequently to other and more distant parts of the system.

The most graphic and truthful account of the sequence of diphtheria which I have seen, is that given by M. Faure, and quoted by Slade in his valuable prize essay, to which I would refer for a complete monograph of this disease.

Two cases of diphtheria in my own practice, both of them female children, five and seven years of age, after having passed through the immediate effects of a violent attack of pharyngeal diphtheria, and considered well, presented many of the secondary symptoms in an exceedingly well-marked form; insomuch that had a doubt existed as to the true nature of the primary affection, the peculiar phenomena observed would have identified diphtheria.

The first of these cases I saw in consultation in the spring of 1861. The patient had apparently recovered from the disease, and she was believed both by the physician and parents to be approaching some form of cerebro-spinal affection. There was extreme debility of the entire muscular system, irascibility and mental dulness. The velum palati, the pharynx and muscles of the glottis were so far paralyzed as not only to give an unpleasant nasal twang to the voice, but for some time to prevent the power of speech altogether, and the act of deglutition was so much interfered with that solids could not be swallowed and fluids would frequently be regurgitated through the nostrils. The joints, especially those of the vertebræ and of the limbs, participated in the general weakness and the movements of the child in walking were tottering and uncertain, similar to those of chorea, while the features appeared to have lost in a measure the power of volition.

Great difficulty was experienced in this case in the administration of medicine, and a general hygienic course was advised. The shower bath, exercise, change of air, and a generous diet, with the addition of stimulating frictions to the spinal column and extremities were persisted in for months with only partial relief; at length a visit of several weeks to the ocean in season, with daily sea-bathing completed her entire restoration to health.

The other case is at present under treatment. The child, five years old, was stricken suddenly with diphtheria, about the middle of December, 1861, in a severe form, confining itself to the velum and pharynx, and unattended with laryngeal symptoms. I discontinued my attendance about the 1st of January, my patient having to all appearances recovered. A few days afterwards, the father called my attention to the peculiar nasal tone of his daughter's voice, and remarked that she did not gain her strength. I recognized at once the peculiar nervous effects resulting from an attack of diphtheria. For several days there will be a remission of her symptoms, affording encouragement of an improvement, again, there will be a rapid increase of her nervous debility. Her powers of speech suffer materially, owing to the relaxation and partial paralysis of the soft parts of the palate and fauces. At times, it is difficult to understand her words, while the process of swallowing food is imperfectly performed, and oftentimes, in the act of drinking, the fluid will be thrown back through the nostrils. The muscles of the face and mouth are so far paralyzed as occasionally to produce an involuntary smile, accompanied by singular contortions of the

facial muscles. There is also considerable loss of power over the muscles of the neck, preventing a steady upright position. The whole system is involved, general debility prevailing, the child has lost her vivacity, her appetite has failed, her skin pallid, her countenance dull and sunken, having lost its former lively expression.

I am treating her with nervine tonics, perchloride of iron, quinia and valerianate of ammonia, with stimulating frictions to the back and extremities; a nutritious diet, and exercise when the weather is favourable.

SMALLPOX.—The deaths from this epidemic for the year have reached the high mortality of seven hundred and fifty-eight (758). It exceeds by far the mortality of any former epidemic, and is equal to five per cent. of the aggregate of deaths for the year from all causes.

The following table gives the deaths in Philadelphia from smallpox for a series of fifty-four (54) years from 1807, the first year in which the deaths and their causes were tabulated and published by the Board of Health.

Years.	Deaths from smallpox.	Years.	Deaths from smallpox.	Years.	Deaths from smallpox.	Years.	Deaths from smallpox.
1807	32	1821	...	1835	106	1849	152
1808	145	1822	...	1836	86	1850	40
1809	101	1823	160	1837	81	1851	216
1810	33	1824	325	1838	45	1852	427
1811	117	1825	6	1839	5	1853	57
1812	...	1826	3	1840	63	1854	40
1813	...	1827	188	1841	259	1855	275
1814	...	1828	107	1842	156	1856	390
1815	...	1829	87	1843	36	1857	65
1816	97	1830	86	1844	17	1858	7
1817	52	1831	18	1845	190	1859	2
1818	8	1832	43	1846	251	1860	57
1819	1	1833	168	1847	9	1861	758
1820	...	1834	212	1848	100	Total	6279

This table presents the indication of what Prof. Jackson some years since pronounced an epidemic law of periodicity of smallpox. It is evident that from two to five years during this consecutive period the disease appears to have reached its maximum, and then either gradually or rapidly declined to its lowest ratio.

The aggregate of deaths for these fifty-four years has amounted to six thousand two hundred and seventy-nine (6,279). The mean number annually has been one hundred and sixteen (116).

The years which produced the heaviest mortality were 1824, which gave three hundred and twenty-five (325) deaths; 1852, which gave four hundred and twenty-seven (427) deaths; 1856, which furnished three hundred and ninety (390) deaths; and 1861, which gave seven hundred and fifty-eight (758) deaths.

Of the deaths for 1861, the proportion of the sexes was equal, viz., three hundred and seventy-nine (379).

Of these deaths, six hundred and sixty-five (665), or 81 per cent. were minors, or under twenty years of age.

Of the minors, five hundred and seventy-two (572), or 75.46 per cent. of the mortality was among children under ten years of age. The deaths under two years amounted to two hundred and sixty-four (264), or 33.36 per cent.

The inference to be drawn from these statistical facts is, that notwithstanding the ordinance for public vaccination has been so far carried out that the names of more than 10,000 persons have been returned as successfully vaccinated within the year, there must yet remain, according to the above returns of deaths from smallpox among children, many families unprotected. It is evident that these families have not been reached, either through neglect or want of proper canvassing by the collectors of cases for vaccination, or vaccination has been imperfectly performed; or else the parents or guardians or friends, through prejudice or other causes, have refused to have their children vaccinated.

That the ordinance has not been successful in protecting our city from the ravages of this loathsome disease, is a truth which cannot be disputed with the fact before us, of 758 deaths from smallpox on record for the year, of which number 75 per cent. were children, who perished prematurely, in consequence of the ignorance or misguided views of their parents.

In a former report I have alluded to the inadequacy of this voluntary provision to secure us from the ravages of smallpox, and I have elsewhere asserted my belief that nothing less than a compulsory law, with a penalty attached for its violation, would prove an effectual barrier to its introduction. No municipal ordinance can be an efficient system; and from my limited experience on this subject, I am quite prepared to adopt the sentiment of an English writer,¹ that "the absence of an efficient system of public vaccination I cannot but consider a national disgrace. I had almost said a national crime." Nothing less than legislative power applied to the whole State will prove an efficient system, or eradicate smallpox.

Another fact gathered from the mortality tables, and bearing intimately upon the importance for some legal enactment, in order to control smallpox, is, that by far the greater number of deaths have occurred in those wards where the population and the tenements are crowded, where will be found wretchedness and filth, with physical and moral depravity, and where defective sanitary arrangements abound.

In five of the lower wards, bordering on the Delaware River, and embracing within their limits locations answering the above description, there were two hundred and seventy-nine (279) deaths, equal to 36.80 per cent. of the whole number; and, again, in those wards from the 16th to the 20th, inclusive, there were two hundred and eighty-nine (289) deaths, or 38.12 per cent. of the whole. Whereas, in the ten wards from the 6th to the 15th, inclusive, embracing a population in the centre of the city, and living under somewhat more favourable circumstances, both as regards numbers, dwellings, ventilation and other sanitary advantages, there are recorded only one hundred and four (104) deaths, or 13.72 per cent. of the entire mortality.

Consequently, we have ten wards of the city, embracing a population of 222,720 souls, returning less than 14 per cent. of the deaths from smallpox, whilst other ten wards, five in the southeastern section, and five in the northeastern section of the built up portions of the city, with a combined population of two hundred and sixty thousand seven hundred and fifty-four (260,754), numbering only thirty-eight thousand and thirty-four (38,034) more than the former ten wards, returning five hundred and sixty-eight (568) deaths, equivalent to 74.92 per cent.

Nor can any more reliable information be produced, to prove that smallpox, while it does not spare any class of citizens, or pass by favourable

¹ E. C. Seaton, M. D., Trans. National Assoc., 1857, p. 460.

localities, manifests a decided preference for the more unhealthy districts, and wherever can be found a wretched, depraved and crowded population.

Smallpox has been prevailing in our city, as an epidemic, for the past eighteen months. It broke out in the 17th ward, in the month of October, 1860, and before the close of that year was found in the 1st and in the 4th wards at the southeastern extremity of the city. During October, the deaths were eleven; in November, thirteen, and in December nineteen. In all forty-three deaths. Fifteen of these occurred in the 17th ward, five in the 1st, and six in the 4th ward.

During the entire year of 1861, as the record will show, this disease prevailed in those and the adjoining wards with defiant obstinacy. The first five wards returning two hundred and seventy-nine (279) deaths, and the four from the 16th to the 20th, inclusive, in the upper part of the city returning two hundred and eighty-nine (289).

SCARLET FEVER.—The heaviest mortality from any one of the diseases in the zymotic class is affixed to scarlet fever, amounting in the aggregate to eleven hundred and ninety (1190), a higher death rate than on any former year, and equal to 8.22 per cent. of the entire annual mortality.

Of the deaths, five hundred and eighty-two (582) were males, and six hundred and eight (608) females. The proportion, according to sexes, being nearly equal.

From the adult population there is recorded only six deaths, the remainder, eleven hundred and eighty-four (1184) being minors, or those under twenty years, of whom eleven hundred and fifty-six (1156) were within ten years of age. The greatest mortality during any one period of childhood was between two and five years, at which age, six hundred and eight (608) children perished.

Not a death is recorded from this disease in the Almshouse Hospital, and only three from the coloured population.

The deaths throughout the several wards differed very materially according to the location of the ward, as in smallpox; the more crowded and insalubrious wards suffered the most, while those favoured with sanitary improvements shared far less in the destructive mortality from this fatal epidemic.

The disease must have prevailed in a very malignant form in the 15th, 16th, 17th, 18th, 19th and 20th wards, as five hundred and forty-five (545) of the deaths, equal to 48 per cent., came from that cluster, all of which contain neighbourhoods highly favourable to the generation of pestilential diseases, to some of which I have already referred.

In the 20th ward there were one hundred and three (103) deaths, and the seventeenth, which I look upon as the most unhealthy of all, gave ninety-nine (99) deaths, while the 19th, the largest in population, furnished ninety-six (96) deaths.

The rural wards, embracing the 21st, 22d, 23d and 24th, contributed one hundred and twenty-nine (129) of the deaths. The five wards, viz., the 6th, 7th, 8th, 9th and 10th, furnished one hundred and forty (140); and of these the 7th, a section somewhat inimical to health, produced sixty (60).

The 1st and 2d wards gave together, one hundred and two (102) deaths. The 3d, 4th and 5th wards gave only sixty (60) deaths. The 11th, 12th, 13th and 14th wards furnishing one hundred and sixty-nine (169) deaths.

CHOLERA INFANTUM.—This endemic, confined almost entirely to cities, and prevailing during the warm season, contributed 618 deaths. Of this

number 538, or 85 per cent. occurred in the third quarter, July, August and September.

Whilst peculiar to children, it is particularly so to those under two years. In the present instance, 572 or 92 per cent. of the deaths were within that term of existence which embraces the "second summer," a season so much dreaded by mothers, and not without cause, for its destructive tendency to infant life.

Every ward in our city suffered from this disease; even the rural districts were not exempt. The 19th, 7th and 17th wards, however, contributed the highest mortality; while the 1st, 2d, 15th and 20th shared next in extent. These are among the worst wards for health in our city. The 9th, 6th and 14th wards returned the least number of deaths.

Typhoid fever caused 281 deaths.

Hooping cough is represented by 93 deaths. All of these deaths were in children under ten years of age, and 51 or 55 per cent. were within the first year.

The location of these deaths was chiefly in those wards peculiarly liable to infectious diseases, viz., the 1st, 2d, 4th, 7th, 15th, 17th, 18th and 19th, producing 61 deaths, equal to 65 per cent. of the whole. The 6th, 8th, 9th and 22d yielded none. The remaining twelve averaged $2\frac{1}{2}$ deaths.

Measles was quite prevalent during the year, but caused only 74 deaths. With the exception of 7 deaths, in the 7th ward, the force of the disease appeared to have spent itself in the upper wards of the city.

Table V., Class 2. GENERAL SEAT OR SPORADIC DISEASES.—The deaths placed in this class have amounted to 2,304, of which number the minors exceed the adults by 61 per cent. The deaths in this class constitute about 16 per cent. of the entire mortality.

The heaviest mortality from any one disease has been from debility, amounting to 826. More than 50 per cent. of these deaths were in children, of which number 341, or 80 per cent. had not reached the first year of life.

Marasmus foots up 533 deaths. Of these, 319, or 60 per cent. were within the first year of life.

Dropsy furnished 284 deaths, and inanition 124. These diseases have been very general throughout the city, the deaths having been impartially distributed.

Table V., Class 3. The NERVOUS SYSTEM furnished 2,094 deaths, or 14.47 per cent. of the entire mortality.

Convulsions contributed 636 or 30.37 per cent. of these deaths. This disease (?) was peculiarly fatal among children. The deaths under twenty were 606, and those included in this number under one year were 345, or 54.24 per cent. of the whole.

Inflammation of the brain caused 305 deaths. This disease was also fatal among children, as 266 were under 20 years of age, and of these, 223, or 73 per cent. were under five years.

Congestion of the brain contributed 275 deaths, and dropsy of the brain 222. Of this latter disease there were only 4 adult deaths.

Of these three last diseases, the excess of deaths in male children was equal to 48.89 per cent.

Table V., Class 4. The RESPIRATORY SYSTEM.—This class of diseases, very generally make up a large share of the deaths. They number 3232 or 22.33 per cent. of the entire mortality. Three of the causes of death under this head, viz., consumption of the lungs, inflammation of the lungs,

and croup, amounting to 2802, have produced 86 per cent. of the mortality from diseases of this class.

Consumption of the lungs furnished 1817 deaths. This is an excess over those of last year of 12 per cent., and is the highest annual mortality ever recorded for this city.

The deaths of the sexes were nearly equalized. The two decennial periods between 20 and 40, furnished 898 of the deaths equal to 49 per cent.

There were 139 deaths recorded from people of colour, an increase over all former years. The increase may be the result of more accurate reports.

The deaths in persons of foreign birth amounted to 613 or 33.73 per cent. Those of American birth numbered 1008, and 196 were recorded as unknown.

Inflammation of the lungs numbered 681 victims, of which 484 or 71 per cent. were in children. During the first year of life 236 died from this fatal disease.

Croup, another infantile disease produced 304 deaths, of these, 303 were among minors. The period of childhood most liable to croup, is between 2 and 5 years. During this ternary period there were 159 deaths equal to 52 per cent.

The sexes were nearly equalized.

Table V., Class 5. THE ORGANS OF CIRCULATION.—Under this head I find 368 deaths. The term disease of the heart, which is too general to afford any information as to the precise character of the malady, furnishes 265, or 72 per cent., of the deaths.

The 8th, one of our healthy wards, returned 20 deaths from disease of the heart. The 7th, an unhealthy one, gave 19. Other causes than those involving a good or bad sanitary condition of the city are productive of these diseases.

There was a small increase over the deaths in this class for 1860. But a decline in those returned "disease of the heart."

Table V., Class 6. DISEASES OF THE DIGESTIVE ORGANS.—Those diseases coming under this class and confined to the organs of nutrition have furnished 686 deaths, or 4.74 per cent., of the mortality. Inflammation of the stomach and bowels caused 238 deaths. Inflammation of the peritoneum 67, and cancer of the stomach 64 deaths.

Table V., Class 7. DISEASES OF THE URINARY ORGANS.—The deaths under this head amounted to 109. The proportion of adults to minors was as 92 to 17. The disproportion of deaths in the sexes was very great, 78 males to 31 females.

Albuminuria, or Bright's disease of the kidneys, yielded 20 deaths, and of these 16 were males and only 4 females, a similar disproportion in the sexes I have noticed before.

Diabetes gave 12 deaths. Disease of the kidneys 29, and inflammation of the bladder 28 deaths.

Table V., Class 8. ORGANS OF GENERATION.—The deaths from diseases of the generative system amounted to 95, with the exception of four, and those between 15 and 20—the deaths were in females over 20 years of age.

Cancer of the uterus caused 30 deaths. Sixteen of these were in women over fifty.

Puerperal fever gave 15, while puerperal convulsions contributed 25 deaths.

Table V., Class 9. ORGANS OF LOCOMOTION.—From this class there were 56 deaths. Rheumatism furnished the largest quota of deaths,

amounting to 23. Diseases of the spine under several distinct heads gave also 23 deaths.

Table V., Class 10. DISEASES OF THE INTEGUMENTARY SYSTEM.—Under this head I find but 6 deaths.

Table V., Class 11. OLD AGE contributed 203 deaths, males 66, and females 137. All vital statistics agree that females are the longest lived. This record gives 67 per cent., in favour of females. This term "Old Age" is not, I imagine, always applied in the strictest sense, as I find in the present instance one death from this cause, located between 50 and 60 years of age, and 11 between 60 and 70 years. They may have been premature.

Table V., Class 12. EXTERNAL CAUSES.—From this class, embracing accidents and violent causes, there have been returned 468 deaths, or 3.30 per cent. of the entire mortality.

Casualties, or accidents not specified, has the credit of 122 deaths. Drowned, 99. Burns and scalds, 81. Suicide, 31, and gunshot-wounds, 21. These two last causes for death have greatly increased over any former year. The latter may be readily accounted for, in consequence of the war and the increased use of firearms. Of the fifty-two deaths from these causes, there were only five females.

A very large proportion of the deaths under this class were among persons born in foreign countries, viz., 124 equal to 26.49 per cent. whilst the deaths from the different wards give the heaviest number in those, where there are located extensive manufactories with their numerous workmen.

The deaths from intemperance were 29—15 females and 14 males.

Table V., Class 13. UNKNOWN, makes up 104 deaths. As usual, under this obscure title, many of the deaths occurring in this and even in other cities, are recorded. With a careful attention to diagnosis, the number could, no doubt, be materially lessened. In the Boston mortality report for 1859, complaint is made that in 69 instances no attempt was made to specify the disease. Dr. Snow, of Providence, R. I., in his report for that city for 1860, makes the following terse remarks in relation to the proper certification of deaths. "A correct public sentiment upon this subject should demand a more strict and accurate inquiry into the cause of every death. As it is," he says, "it is better for statistical purposes that deaths should be reported as from unknown causes, than that they should be incorrectly reported." This hint may probably stir up some of the profession to do better in future.

Table V., Class 14. STILL-BORN.—The still-births, or, the deaths in intra-uterine life, or those which took place during the process of labour, have numbered 630. Of these, 364 were males, and 266 females. The former outnumbering the latter by 98, or 37 per cent.

This mortality was less than the previous year by 11 per cent.

The record does not make any distinction between premature births and still-born, nor does the registration law require it.

An examination into the causes which are so productive of the death of infants before birth, and just at the moment when they are to be ushered into a new existence, would form an interesting and important, yet in some degree at least it might be considered a revolting chapter of vital statistics.

In connection with the subject of infant mortality in this city, I would express the hope that the College might find in this question also a new incentive for scientific investigation.

TABLE IV.—*Interments in the City of Philadelphia from December 29, 1860, to December 28, 1861.*
 Division 1. *Mortality classified according to Sex and Age.*

DISEASES.	SEX.			AGES.												Males.	Total.					
	Males.	Females.	Boys.	Girls.	Under 1 Year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.			70 to 80.	80 to 90.	90 to 100.	100 to 110.	110 to 120.	120 to 130.
Abscess	25	12	1	1	5	3	1	2	1	2	7	10	3	4	6	1	1	1	1	1	1	1
Abortion	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Adynamia or debility	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Albuminuria	16	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Anemia	10	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Anerism	6	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Asphyxia	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Autopsy or carbuncle	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Apoplexy	5	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Asphixie	38	29	6	5	5	12	1	12	1	3	8	11	23	57	36	33	14	1	1	1	1	
Asthma	5	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Burns and scalds	30	17	34	15	41	3	1	1	1	1	11	4	1	1	12	1	1	1	1	1	1	
Cancer	27	34	12	37	6	13	24	11	3	1	3	9	9	3	3	1	1	1	1	1	1	
of the breast	21	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " bladder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " eye	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " face	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " heart	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " liver	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " lungs	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " nose	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " rectum	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " stomach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " skin	27	37	3	2	1	2	3	1	1	1	1	11	13	12	14	8	1	1	1	1	1	
" " throat	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " testicles	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " uterus	1	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " oesophagus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Casualties	103	19	40	11	5	8	12	11	9	6	21	18	11	8	6	3	1	1	1	1	1	
Caries	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
of the spine	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Congestion	101	111	93	79	63	30	41	22	7	9	20	23	18	16	13	9	3	3	3	3	3	
of the brain	2	3	2	2	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" bowels	7	3	2	2	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" liver	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" lungs	59	51	38	31	33	12	13	7	1	3	4	7	2	1	1	1	1	1	1	1	1	

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
Division 1. *Mortality classified according to Sex and Age.*

DISEASES.	SEX.				AGES.														ADULTS.	MINORS.	TOTAL.	
	Males.	Females.	Boys.	Girls.	Under 1 year.	AGES.																
						1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.				100 to 110.	110 to 120.
Convulsions	336	300	325	281	345	111	105	38	3	4	7	8	7	3	3	1	1	1	..	..	30	606
" puerperal	..	25	..	3	..	..	..	..	..	3	14	7	1	..	..	..	..	..	..	..	22	3
Consumption of lungs	916	907	136	163	54	34	37	26	24	127	475	423	277	169	115	44	12	..	..	..	1615	302
" stomach and bowels	7	8	4	2	1	1	1	2	..	..	1	2	..	2	..	..	..	..	..	..	9	6
Compression of the brain	3	1	1	1	2	2	..	..	..	..	1	1	..	..	..	..	..	..	..	..	2	2
Concussion of the brain	7	4	2	3	2	2	1	1	..	..	1	1	..	..	..	2	1	..	..	..	6	5
" spine	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	1	..	1	1
Collapse	..	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
" of the lungs	1	1	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Coup de soleil	2	..	1	1	1	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	2
Chicken-pox	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Chlorosis	..	2	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	3	1
Constipation	3	1	1	..	..	..	..	1	..	..	1	1	1	1	1	..	..	..	..	..	2	1
Cirrhosis	14	7	..	..	..	..	..	..	..	..	1	3	4	4	7	2	..	..	..	..	21	..
Coxsalgia	2	2	2	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	4	4
Croup	154	150	153	157	37	51	153	50	5	1	..	1	..	..	..	..	..	..	..	..	1	1
Cyanosis	38	26	38	25	62	1	..	..	..	..	..	..	1	1	1	..	..	..	..	..	2	6
Colic	3	3	2	3	1	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	2	4
Coma	..	1	1	..	1	1	2	..	..	..	1	1	1	..	..	..	..	..	..	..	4	1
Cramps	7	9	5	7	10	..	..	..	..	..	1	3	..	..	..	1	1	..	..	..	7	11
Cholera	2	5	..	2	..	1	..	6	..	..	..	2	1	1	1	3	..	..	..	..	7	11
" infantum	316	302	316	302	400	172	40	6	..	..	..	..	..	..	..	..	..	..	..	..	10	2
" morbus	11	7	7	4	8	1	1	1	..	..	..	..	..	1	1	2	1	1	..	..	12	1
" asphyxia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	1
Diabetes	11	1	2	..	..	..	81	212	21	7	5	4	1	1	1	1	..	..	..	..	401	425
Diphtheria	254	248	248	241	56	81	212	112	21	7	5	4	1	1	1	1	46	14	4	..	401	425
Diuresis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	66	91
Debility	442	384	244	181	31	29	33	15	4	3	30	41	9	11	9	12	2	1	..	..	91	157
Dysentery	82	75	51	40	39	27	15	9	..	6	31	14	9	5	3	2	2	..	..	..	64	95
Drowned	93	6	32	3	..	..	5	15	9	2	6	14	7	11	15	11	8	..	..	..	69	99
Diarrhea	103	80	66	48	70	27	13	2	..	2	6	1	3	..	..	2	1	..	..	..	7	1
Dyspepsia	3	5	..	1	1	..	..	..	..	..	..	1	..	..	..	..	2	1	..	..	8	8
Delirium	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Dropsy	143	141	59	43	10	4	46	27	8	7	11	30	27	46	27	31	8	1	1	..	182	102
" abdominal	4	4	2	..	..	1	..	1	..	..	..	1	..	2	2	1	1	..	..	..	6	2
" of the brain	134	88	132	86	91	66	43	15	..	..	..	..	..	..	..	..	..	..	..	..	4	218
" chest	34	29	25	12	5	3	13	12	2	2	1	1	1	1	6	10	..	..	..	..	26	37

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
Division 1. *Mortality classified according to Sex and Age.*

DISEASES.	SEX.				AGES.													ADULTS.	MINORS.	TOTAL.			
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.				90 to 100.	100 to 110.	110 to 120.
Fever, camp	3	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" confined	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" congestive	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" enteric	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" hectic	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" intermittent	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" nervous	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" puerperal	12	10	7	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" remittent	582	608	580	604	98	192	615	263	24	4	2	3	1	1	3	1	1	1	1	1	1		
" scarlet	148	133	46	52	1	4	23	25	8	37	88	30	36	14	10	5	3	1	1	1	1		
" typhoid	17	28	5	7	1	1	2	5	2	3	8	8	5	5	3	3	1	1	1	1	1		
" typhus	13	33	1	14	2	6	8	4	1	1	7	5	2	2	1	6	3	1	1	1	1		
" rheumatic	4	1	45	48	51	21	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Gangrene	45	48	45	48	51	21	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Gout	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Whooping-cough	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Hypercatarrhs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Hydrophobia	7	7	17	16	15	1	6	5	2	5	12	9	5	6	3	4	1	1	1	1	1		
Hernia	38	31	17	16	15	1	1	1	1	1	4	2	3	1	2	2	1	1	1	1	1		
Hemorrhage	15	10	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" of the lungs	9	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" stomach and bowels	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" uterus	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Inflammation	184	121	168	108	84	64	75	30	9	4	11	12	5	8	3	4	4	2	2	2	2		
" of the brain	71	67	42	36	42	17	13	2	4	1	8	7	9	10	14	8	4	2	2	2	2		
" " bronchi	13	15	2	1	1	1	1	1	1	1	7	6	2	1	4	4	2	2	2	2	2		
" " bladder	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " chest	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " foot and leg	11	12	6	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " heart	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " kidneys	367	314	262	222	235	98	93	36	7	11	35	31	30	35	30	26	8	2	2	2	2		
" " lungs	20	4	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " liver	15	9	14	8	4	4	8	3	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " larynx	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " nose	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
" " ovaries	14	7	4	3	2	1	1	2	1	1	5	1	1	2	2	1	1	1	1	1	1		
" " pleura	14	7	4	3	2	1	1	2	1	1	5	1	1	2	2	1	1	1	1	1	1		

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
 Division I. *Mortality classified according to Sex and Age.*

DISEASES.	SEX.				AGES.												ADULTS.	MINORS.	Total.					
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.				80 to 90.	90 to 100.	100 to 110.	110 to 120.	
Inflammation of peritoneum . . . stomach & bowels . . .	24	43	6	8	5	1	2	3	2	3	17	11	9	4	7	2	..	..	..	..	..	50	17	67
“ “ spine . . .	107	131	63	67	53	23	26	15	6	7	21	27	17	13	19	9	..	..	..	..	..	108	130	238
“ “ throat . . .	5	3	4	3	1	1	2	3	..	..	..	..	..	1	..	..	..	..	..	..	1	7	12	
“ “ tonsils . . .	1	2	1	2	..	..	3	..	..	..	..	..	..	..	..	..	1	1	1	1	..	3	3	8
“ “ prostate gland . . .	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	6
“ “ uterus . . .	..	4	..	..	..	..	..	..	..	..	3	1	2	2	..	6	2	1	1	4	4	20	104	124
Immation . . .	79	45	66	35	89	7	4	2	1	1	5	15	4	4	1	1	1	1	1	1	1	62	29	99
Intemperance and exposure . . .	14	15	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	1	1	1	4	4	4	8
Intussusception . . .	4	4	2	2	1	..	2	1	..	..	1	..	1	..	..	..	..	..	..	..	16	8	24	40
Ileus . . .	1	1	..	3	6	..	2	..	..	..	2	..	..	4	3	4	1	..	..	..	1	1	1	17
Jaundice . . .	13	11	5	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
Laceration of the brain . . .	14	3	14	3	17	..	..	..	..	..	3	5	9	2	..	..	..	..	..	..	..	32	..	46
Malformation . . .	3	8	..	..	..	..	..	..	..	..	6	12	9	3	9	8	4	..	..	..	..	32	..	45
Mania a potu . . .	30	2	..	..	..	..	..	..	..	..	3	4	4	6	9	8	4	..	..	..	..	38	495	533
Marasmus . . .	285	248	267	256	319	101	53	18	3	1	3	1	1	1	..	..	..	..	..	..	3	71	1	734
Menses . . .	36	38	34	37	15	22	29	4	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2
Neglect . . .	..	1	..	..	1	..	..	..	..	..	1	..	..	1	1	1	1	1	1	1	..	4	4	8
Neuralgia . . .	1	3	..	..	..	..	..	..	..	..	..	..	1	..	1	1	1	1	1	1	..	9	..	20
Nervous prostration . . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Old age . . .	66	137	..	..	..	..	1	..	..	..	..	..	1	1	11	57	34	4	1	1	203	..	203	203
Oedema of the glottis . . .	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
“ “ lungs . . .	1	1	1	..	1	..	1	..	..	..	..	..	..	2	1	1	1	1	1	1	..	1	1	7
Obstruction of the bowels . . .	2	5	1	..	1	..	..	..	..	..	1	1	..	..	2	1	3	1	1	1	..	6	1	17
Ossification of the heart . . .	3	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	1	1	..	..	7
“ “ arteries . . .	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	159
Palsy . . .	75	84	6	1	..	2	3	..	..	2	2	4	16	21	39	50	16	2	2	2	..	152	17	169
Poisoning . . .	3	4	1	1	1	1	1	1	1	1	5	2	3	1	1	1	1	1	1	1	1	5	13	20
Pyæmia . . .	12	8	3	4	2	1	..	..	..	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Purpura . . .	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Pemphigus infantilis . . .	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Rheumatism . . .	10	13	6	1	1	..	4	2	1	1	2	2	6	1	2	3	..	..	..	..	16	7	23	23
Rupture of the heart . . .	1	1	1	..	..	..	..	..	..	..	1	1	1	..	1	1	1	1	1	1	1	1	1	1
“ “ uterus . . .	1	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Rabies . . .	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	31
Suicide . . .	26	5	..	..	..	..	..	..	..	..	5	9	10	2	3	2	..	..	..	..	..	..	..	..

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
 Division 2. *Mortality classified according to Colour, Nativity, and Wards.*

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.		WARDS.																									
				United States.	Foreign.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
Convulsions	11	27	6	600	23	8	32	16	32	20	15	14	11	13	24	21	17	13	44	31	47	26	68	47	11	9	11	19	20	21	29
" puerperal	..	..	..	15	8	..	1	..	..	3	3	..	..	1	2	..	..	2	2	..	..	2	3	..	2	..	3	3	3	3	29
Consumption of lungs & bowels	154	139	28	1008	613	196	95	101	51	101	71	29	124	46	52	38	41	51	83	48	80	56	125	81	28	33	38	38	221	21	21
Compression of the stomach & bowels	..	1	..	8	6	1	..	..	..	2	..	..	..	1	..	..	..	..	1	3	1	1	2	..	..	..	1	1	1	1	1
Concussion of the brain	..	1	..	3	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" " spine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Collapse	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" of the lungs	1	..	..	2	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Coup de soleil	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chlorosis	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Constipation	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cirrhosis	4	..	..	3	1	..	..	4	..	..	..	1	..	2	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	1
Coxalgia	..	..	..	298	3	3	15	11	16	10	4	12	6	4	8	4	8	13	25	18	18	9	27	14	19	7	19	11	5	2	1
Group	..	8	6	62	1	1	10	2	2	3	..	3	4	2	3	..	..	1	3	3	2	2	2	2	1	3	6	5	2	2	2
Gynosis	2	2	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Golte	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Goma	..	..	..	13	3	..	..	1	1	..	..	..	..	..	1	2	1	2	1	..	1	..	..	..	..	..	..	..	..	..	..
Cramps	..	..	..	4	3	..	..	..	..	..	..	..	..	..	..	1	2	1	2	1	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	2	29	10	616	1	38	33	20	27	20	12	41	21	9	19	20	25	13	12	38	18	40	26	53	39	17	17	12	23	15
" infantum	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	3	1	2	..	3	1	..	..	..	..	..	..
" morbus	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" asphyxia	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diabetes	3	..	..	5	5	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	4	17	11	479	1	12	22	12	12	16	7	19	5	10	23	24	16	27	25	20	19	41	14	29	45	5	5	1	3	11	11
Buberculosis	..	..	..	5	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Debility	41	63	5	575	175	76	52	40	21	36	25	35	26	26	27	21	11	19	27	47	22	51	36	57	40	16	15	9	70	47	4
Dysentery	12	7	9	110	30	17	7	6	4	5	5	3	5	3	3	7	2	3	4	5	6	10	9	16	2	3	3	4	17	27	4
Dysentery	..	..	..	45	30	24	6	3	6	4	2	6	2	4	3	1	1	1	1	1	1	2	3	6	3	5	1	1	12	27	4
Diarrhea	21	8	6	132	33	18	10	6	6	8	6	10	3	1	6	7	3	3	1	9	6	10	17	16	6	3	4	3	25	5	3
Dyspepsia	..	..	..	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Debauch	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dropsy	..	..	..	178	92	11	21	13	4	13	12	2	14	9	6	7	9	7	10	5	12	13	8	22	18	10	3	11	19	2	10
" abdominal	7	25	10	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" of the brain	2	1	..	213	3	6	2	10	12	9	7	7	3	2	7	3	9	9	4	16	4	11	11	20	14	3	7	5	13	4	5
" " chest	1	9	5	51	1	2	2	7	3	..	2	3	2	4	2	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*

Division 2. *Mortality classified according to Colour, Nativity, and Wards.*

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.			WARDS.																							
				United States.	Foreign.	Unknown.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Dropsy of the heart	1	2	..	19	10	2	..	1	..	2	1	..	1	2	..	1	1	3	1	1	..	2	4	1	1	1	1	1	3	3
Disease of the brain	1	1	3	99	9	4	5	9	2	6	2	4	3	3	3	6	7	4	17	6	1	1	3	14	1	..	..	5	2	
" " bladder	12	11	11	369	78	18	12	11	5	5	19	20	12	12	10	4	10	8	12	7	6	8	13	14	3	6	7	20	9	
" " heart	..	..	..	1	1	..	4	3	1	1	..	1	2	2	..	..	1	2	1	3	3	3	1	5	3	1	8	1	..	
" " liver	1	1	2	163	13	..	4	1	1	1	..	1	1	1	..	..	2	1	3	1	1	1	1	1	1	1	1	1	6	
" " lungs	3	2	..	18	5	5	..	3	..	2	..	3	1	2	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	
" " kidneys	..	..	..	1	8	5	..	..	..	..	..	3	1	2	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	
" " ovaries	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " pelvis	..	..	..	1	1	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " prostate gland	..	..	..	1	1	1	..	2	1	2	..	2	1	1	..	..	..	..	1	1	..	1	1	..	..	1	1	2	1	
" " spine	1	2	1	8	2	1	..	2	..	..	..	..	..	..	..	..	..	..	2	1	..	..	1	1	..	..	..	..	..	
" " stomach & bowels	..	..	..	14	3	..	..	..	2	..	..	..	1	1	..	..	..	..	2	1	..	..	..	1	5	2	1	1	1	
" " throat	..	..	..	2	..	..	..	1	1	2	2	3	1	6	5	4	1	6	3	1	1	1	2	1	5	2	1	4	2	
" " uterus	..	..	..	12	1	..	5	5	1	1	1	..	1	6	5	1	1	1	3	1	1	2	1	5	2	1	1	4	2	
Effusion on brain	5	3	3	67	3	1	5	5	1	1	1	..	1	6	5	1	1	1	3	1	1	2	1	5	2	1	1	4	2	
" " chest	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " spinal marrow	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Erysipelas	4	3	1	48	11	3	6	5	1	2	2	3	1	3	..	2	2	2	3	2	5	2	8	2	1	2	1	6	2	
Epilepsy	..	..	..	10	7	3	2	1	1	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Eczema	5	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Enlargement of the heart	..	1	..	7	4	1	..	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" " liver	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Emphysema of lungs	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Exposure and debauch	2	..	..	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fracture	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " of the arm	..	..	..	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " leg	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " liver	..	..	..	4	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " skull	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " spine	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " thigh	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Fatty degeneration of the liver	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Fungus medullaris	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Fever	..	..	..	3	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " of the brain	..	..	..	7	4	3	..	..	..	..	..	..	..	..	..	..	..	..	..											

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
Division 2. *Mortality classified according to Colour, Nativity, and Wards.*

[illegible]

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
Division 2. *Mortality classified according to Colour, Nativity, and Wards.*

[illegible]

TABLE IV.—*Interments in the City of Philadelphia during 1861—Concluded.*
 Division 2. *Mortality classified according to Colour, Nativity, and Wards.*

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.		WARDS.																										
				United States.	Foreign.	Unknown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
Scrofula	7	12	2	63	6	7	4	5	4	3	3	2	2	1	1	4	6	1	..	6	1	15	3	4	3	5	..	1	2	2	7	
Smallpox	7	38	4	608	52	38	47	95	33	63	41	6	10	6	4	8	24	10	10	10	15	34	97	45	70	43	26	4	1	1	9	15
Softening of the brain	2	..	..	20	7	2	2	1	3	2	3	..	..	2	1	2	..	..	2	1	..	..	2	1	..	1	1	1	2	2	3	29
" " lung	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Sore throat	..	..	..	6	2	1	1	1	1	1	1	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1
Stillborn	..	39	3	620	2	1	45	23	28	24	19	43	16	18	17	33	23	15	13	43	29	30	20	49	30	4	8	7	14	54	..	
Stone	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	5
Syphilis	4	1	..	6	3	3	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Suspension	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Strangulation	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stricture of œsophagus	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..
Suffocation	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syncope	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Tetanus	8	..	1	19	2	5	3	1	1	1	1	1	1	1	1	..	3	..	1	1	1	..	1	..	1	..	..	..	..	..	..	9
Teething	..	..	..	30	2	..	1	1	1	2	1	1	1	1	1	2	1	..	..	1	4	..	3	3	2	6	1	1	1	1	1	1
Tabes mesenterica	..	4	..	33	2	..	4	4	1	2	1	2	1	2	1	1	1	..	..	1	1	1	1	1	1	1	1	1	1	1	1	2
Tumours	..	1	1	13	9	1	3	..	1	1	3	1	1	1	1	1	1	..	..	1	1	1	1	1	1	1	1	1	1	1	1	1
Ulceration	..	..	..	1	1	1	..	2	2	1	2	1	2	1	1	..	..	..	..	2	1	1	1	1	1	1	..	..	..	..	..	..
" of stomach & bowels	..	1	1	12	5	1	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	1	1	1	1	..	..	..	..	..	..	..
" throat	..	1	..	10	1	1	1	1	..	..	..	1	1	1	1	..	..	..	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Uremia	..	..	..	1	..	1	1	1	..	..	..	1	1	1	1	..	..	..	..	2	1	1	1	1	1	1	1	1	1	1	1	1
Unknown	26	6	5	60	13	31	2	4	1	2	3	2	6	5	2	2	2	1	2	..	2	2	7	1	8	2	3	1	1	5	31	4
Violence	..	1	1	4	6	3	1	1	2	1	2	1	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Wounds	..	..	..	1	3	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	1	1	1	1
" cannon-ball	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" gunshot	..	..	6	14	3	3	2	2	..	..	..	..	1	..	..	..	1	..	1	1	1	1	1	..	2	1	1	1	2	1	1	1
Worms	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Want and exposure	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	543	714	298	11323	2200	845	875	758	400	681	488	286	733	427	356	422	452	362	397	426	708	529	828	596	1085	809	332	248	434	1082	446	1

¹ Deduct deaths in Philadelphia Almshouse, 543; net amount of deaths in Twenty-fourth Ward, 489.

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division 1. Showing Sex and Age.

DISEASES.	SEX.				AGES.												ADULTS.	MINORS.	TOTAL.				
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.				80 to 90.	90 to 100.	100 to 110.	110 to 120.
CLASS I. ZYMOTICS, &c.—continued. 2d Quarter—continued.																							
Fever, typhoid or enteric . . .	34	29	9'	8	..	..	5	6	2	4	18	11	9	4	2	2	..	..	..	..	..		
" typhus .. .	6	10	2	6	9	3	3	..	2	..	1	1	..	3	2	2	..	..	..	..	..		
Hoopings-cough . . .	9	6	15	11	7	10	2	..	..	..	..	..	..	1	1	1	..	..	..	..	..		
Measles .. .	16	11	7	7	6	35	8	10	24	16	7	4	1	1	1	1	..	..	..	..	..		
Smallpox .. .	129	138	93	121	62	39	60	3	8	10	24	16	7	4	1	1	..	..	..	..	..		
Syphilis .. .	..	2	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Thrush or aphthae .. .	1	1	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Varicella .. .	..	1	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Total second quarter	487	530	406	460	185	136	339	162	26	18	50	35	27	13	10	12	4	..	..	..	..		
3d Quarter. July, August, September.																							
Cholera .. .	200	267	290	267	358	159	35	5	..	..	..	..	..	1	..	..	..	..	..	..	..		
" Infantum .. .	8	47	5	3	7	17	2	..	..	..	..	2	1	3	5	6	2	..	..	..	..		
" morbus .. .	63	63	48	35	55	17	2	..	..	..	..	2	1	3	5	6	2	..	..	..	..		
Diarrhoea .. .	75	71	73	73	15	23	63	35	6	..	3	2	3	7	6	8	2	..	..	..	..		
Diphtheria .. .	56	48	38	23	25	19	9	7	2	1	7	9	3	7	6	8	2	..	..	..	..		
Dysentery .. .	10	4	8	2	6	1	1	..	..	..	1	1	..	1	1	1	1	..	..	..	..		
Erysipelas .. .	3	3	2	..	1	1	..	..	1	..	1	..	..	2	..	2	..	..	..	..	..		
Fever .. .	2	3	1	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..		
" bilious .. .	1	1	1	..	..	..	..	1	..	..	..	..	1	..	1	2	..	..	..	..	..		
" congestive .. .	..	1	1	1	..	..	1	..	..	..	..	..	1	..	1	1	1	1	1	1	1		
" intermittent .. .	1	6	1	1	..	..	1	..	1	1	1	1	1	..	3	..	..	..	..	..	..		
" nervous .. .	6	6	4	3	1	..	2	..	1	1	1	1	1	..	3	..	..	..	..	..	..		
" remittent .. .	118	112	112	117	22	30	145	55	7	..	24	6	12	4	2	1	..	..	..	..	..		
" scarlet .. .	43	35	16	13	..	3	7	8	3	8	24	6	12	4	2	1	..	..	..	..	..		
" typhoid or enteric .. .	4	4	1	1	..	..	..	..	..	2	2	2	1	1	..	..	..	..	..	..	..		
" typhus .. .	12	16	12	16	11	11	8	1	1	2	2	2	1	1	..	..	..	..	..	..	..		
Hoopings-cough .. .	11	13	11	13	5	9	8	1	1	3	11	12	4	2	..	..	..	..	..	..	..		
Measles .. .	11	13	11	13	5	9	8	1	1	3	11	12	4	2	..	..	..	..	..	..	..		
Smallpox .. .	74	82	65	72	31	17	42	28	6	3	11	12	4	2	..	..	..	..	..	..	..		
Syphilis .. .	1	1	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..		
Thrush or aphthae .. .	..	1	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..		
Total third quarter	802	731	705	612	541	291	327	143	27	18	63	41	30	19	17	20	5	1	..	..	..		
							</																

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division I. *Showing Sex and Age.*

DISEASES.	SEX.				AGES.											Adults.	Minors.	Total.					
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.				70 to 80.	80 to 90.	90 to 100.	100 to 110.	110 to 120.
CLASS I.—ZYMOTICS, &c.—continued. 4th Quarter, October, November, December.																							
Cholera infantum	8	12	8	12	7	10	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Diarrhœa	21	15	5	4	4	4	47	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Dysentery	50	53	4	8	4	8	47	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Erysipelas	5	13	1	1	5	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Fever	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ bilious	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ congestive	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ camp	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ nervous	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ remittent	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
“ scarlet	95	103	94	102	9	34	105	42	3	3	1	1	..	..	..	..	..	..	..	..	..		
“ typhoid or enteric	54	34	15	12	1	..	4	5	5	12	34	10	9	1	5	2	..	..	..	..	..		
“ typhus	5	6	1	3	..	..	1	3	..	..	2	2	1	..	1	..	..	..	..	..	..		
Whooping-cough	18	20	18	20	22	10	6	..	..	..	..	1	1	..	..	..	..	..	..	..	..		
Measles	4	5	3	4	1	22	40	14	2	1	8	5	3	..	..	..	..	..	..	..	..		
Smallpox	62	55	51	50	22	22	40	14	2	1	8	5	3	..	..	..	..	..	..	..	..		
Syphilis	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Total fourth quarter	341	322	255	270	78	91	216	100	19	21	52	25	23	12	6	11	6	3	..	..	..		
Total annual mortality from epidemics	2053	2011	1722	1752	922	659	1179	545	89	80	201	124	98	56	42	48	17	4	..	..	..		
CLASS II.—UNCERTAIN OR GENERAL SEAT, SPORADIC DISEASES.																							
Abscess	26	21	7	7	5	3	1	2	1	2	7	10	3	4	6	1	2	..	..	..	..		
Anthrax	..	4	..	2	1	..	..	..	..	1	1	1	..	..	1	1	..	..	..	..	..		
Anæmia	10	8	7	6	7	1	1	2	1	1	3	12	13	15	13	10	2	..	..	..	..		
Cancer or scirrhus	..	27	42	1	..	..	..	..	..	..	..	..	1	3	3	..	1	1	..	..	..		
“ of breast	..	9	..	..	..	..	2	..	..	..	1	1	..	..	1	1	..	..	..	..	..		
Cramp	..	7	5	7	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Cyanosis	38	26	..	25	1	..	..	..	..	..	3	44	47	59	63	94	46	14	4	..	..		
Debility	442	351	244	181	311	29	33	15	4	3	30	44	47	59	63	94	46	14	4	..	..		
Disease of throat	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Dropsy	143	141	59	43	10	4	16	27	8	7	11	30	27	46	27	31	8	1	1	1	1		
Gangrene	13	33	1	14	2	6	3	4	..	..	7	5	2	2	5	6	3	1	1	1	1		
Gout	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..		
Hætic fever	2	..	1	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..		

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division I. *Showing Sex and Age.*

DISEASES.	SEX.				AGES.											Admits.	Minors.	Total.					
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.				70 to 80.	80 to 90.	90 to 100.	100 to 110.	110 to 120.
CLASS IV.—DISEASES OF RESPIRATORY SYSTEM.																							
Asthma	5	12	..	3	1	1	1	1	1	3	4	7	2	3	3	2	1	..	..	..	3		
Congestion of the lungs	59	51	38	31	33	12	13	37	26	127	475	423	277	169	115	8	6	..	..	..	69		
Consumption of the lungs	910	907	136	166	54	34	37	26	5	1	5	1	..	..	..	44	12	..	..	..	302		
Croup	154	150	153	150	37	51	159	50	5	1	5	1	..	..	..	..	..	..	..	..	304		
Disease of the lungs	9	14	5	6	7	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1		
Effusion of the chest	1	3	1	2	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1		
Emphysema of the lungs	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1		
Dropsey of the chest	34	29	25	12	5	3	13	12	2	2	5	5	5	5	7	10	1	..	..	..	37		
Dropsey of the lungs	15	10	1	2	1	1	1	1	4	..	8	7	9	10	14	6	4	..	..	..	22		
Hemorrhage of the bronchi	71	67	42	36	42	17	13	2	..	..	8	7	9	10	14	6	4	..	..	..	78		
Inflammation of the chest	3	1	3	1	3	1	8	3	1	..	7	7	3	3	3	1	..	..	..	..	2		
" " larynx	15	9	14	8	6	1	..	..	..	..	35	31	30	35	80	26	6	2	..	..	22		
" " lungs	367	311	262	222	236	98	93	36	7	14	35	31	30	35	80	26	6	2	..	..	197		
" " pleura	14	7	4	3	2	1	2	2	..	..	5	1	2	2	2	1	..	1	..	..	7		
Total	1657	1575	684	643	428	224	343	140	44	148	539	478	335	234	181	102	33	3	..	..	1327		
CLASS V.—ORGANS OF CIRCULATION.																							
Aneurism	6	3	1	1	2	..	..	..	..	..	..	2	..	2	2	1	..	..	..	..	2		
Disease of the heart	136	129	40	28	12	9	11	10	10	16	19	32	26	39	34	38	8	1	..	..	65		
Dropsey	14	18	6	8	2	..	5	6	1	1	1	3	1	4	2	5	2	..	..	..	14		
Enlargement	15	7	1	2	..	..	3	2	2	2	1	4	1	..	2	3	..	..	..	..	3		
Inflammation	10	12	6	3	..	..	3	2	2	2	..	2	6	1	1	1	..	..	..	..	9		
Ossification	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3		
Pyæmia	12	8	3	4	2	1	..	1	2	1	5	2	3	1	1	1	..	..	..	..	7		
Rupture of the heart	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1		
Syncope	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Total	188	180	57	46	18	10	20	19	16	20	28	43	37	47	45	52	10	1	..	..	103		
CLASS VI.—DISEASES OF THE DIGESTIVE ORGANS.																							
Consumption of the stomach and bowels	7	8	4	2	2	1	1	2	..	..	2	2	1	2	2	..	..	..	..	..	6		
Cancer of the stomach	27	37	3	2	..	2	3	..	1	..	1	11	13	12	14	8	..	..	..	..	5		
" " spleen	1	..	1	..	..	..	..	..	..	..	1	1	1	3	2	1	..	..	..	..	1		
" " liver	4	5	..	..	..	..	..	..	..	..	1	1	1	2	1	..	..	..	..	..	9		
" " rectum	3	1	..	..	..	..	..	..	..	..	1	3	4	4	1	2	..	..	..	..	4		
Cirrhosis	14	7	1	..	..	..	..	..	..	..	1	3	4	4	1	2	..	..	..	..	21		
Constipation	3	1	1	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	1		
Total	103	265	7	6	9	59	1	9	21	3	167	484	21	3232	1827	1905	1327	3232	1827	3232	1		

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division I. Showing Sex and Age.

DISEASES.	SEX.			AGES.											ADULTS.	MINORS.	TOTAL.						
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.				60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	110 to 120.
CLASS VI.—DIGESTIVE ORGANS—continued.																							
Colic	3	3	2	2	3	1	2	..	..	..	1	1	1	1	1	..	..	1	..	..	..		
Constriction of the bowels . . .	7	3	3	3	6	..	1	..	..	..	4	3	..	..	5	6	..	1	..	..	..		
" " liver	19	26	5	4	4	..	1	..	..	1	2	2	10	7	3	2	2	..	..	..	..		
Disease of the liver	12	5	4	2	4	..	1	..	..	..	..	..	1	2	2	2	..	..	..	..			
" " stomach and bowels . . .	4	4	4	2	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..			
Dropsy of the abdomen	3	5	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..			
Dyspepsia	9	3	1	1	1	..	..	..	..	..	4	2	3	..	1	4	4	..	..	..			
Enlargement of the liver	7	7	..	1	1	..	..	..	..	..	2	2	1	1	1	4	4	..	..	..			
Enlargement of the stomach and bowels	107	131	63	67	53	23	26	15	6	7	21	27	17	13	19	9	2	..	..	..			
" " " " " " " " " " " "	24	43	9	8	5	1	..	6	2	3	17	11	9	4	7	6	10	..	..	..			
Inflammation of the stomach and bowels	20	20	4	2	3	1	..	1	1	..	1	7	7	6	10	2	1	..	..	..			
" " " " " " " " " " "	1	1	..	..	..	..	2	1	..	..	1	2	1	4	1	4	1	..	..	..			
Hæmorrhage	4	4	3	2	1	..	2	1	..	..	2	1	..	2	3	4	1	..	..	..			
Intussusception	13	11	5	3	6	..	2	..	..	..	2	1	..	2	2	1	..	..	..	..			
Jaundice	6	5	1	3	1	..	..	..	..	..	..	1	..	..	2	1	..	..	..	..			
Obstruction of the bowels	2	5	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..			
Stricture of the œsophagus	13	17	13	17	17	12	1	..	..	..	..	..	..	..	3	1	..	..	..	..			
Teething	10	8	2	2	..	..	1	..	..	1	5	1	4	1	1	1	1	..	..	..			
Ulceration of the stomach and bowels	2	1	2	1	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..			
Worms	2	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..			
Total	323	363	132	117	112	42	42	31	10	12	66	83	80	65	85	50	8	..	..	..			
CLASS VII.—DISEASES OF THE URINARY SYSTEM.																							
Albuminuria	16	4	2	1	..	..	2	..	1	..	4	5	..	7	1	1	..	..	..	..			
Cancer of the bladder	1	1	1	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..			
" " testicles	11	1	2	2	..	..	1	..	..	..	1	2	1	3	3	3	..	..	..	..			
Diabetes	22	7	4	2	..	..	2	..	..	2	5	1	6	3	1	1	..	2	..	..			
Disease of the kidneys	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
" " " " " " " " " " "	5	3	2	1	..	..	1	..	1	..	7	6	..	1	1	4	2	..	..	..			
Inflammation of the kidneys	13	15	2	..	1	..	1	..	..	..	7	6	2	1	1	4	2	..	..	..			
" " " " " " " " " "	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..			
" " prostate gland	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
" " bladder	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
" " " " " " " " " "	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Stone in bladder	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Uremia	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Total	78	31	13	4	2	1	7	3	2	2	17	17	9	16	15	11	6	1	..	..			
Total	109	92	249	437	686	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			

TABLE V.—*Classified Mortality for the year 1861—Continued.*
 Division 1. *Showing Sex and Age.*

DISEASES.	SEX.				AGES.																Appts.	Mises.	Total.
	Males.	Females.	Boys.	Girls.	Under 1	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	110 to 120.			
					Year.																		
CLASS VIII.—DISEASES OF THE ORGANS OF GENERATION.																							
Cancer of the uterus	..	30	..	..	..	..	..	..	..	..	2	6	6	8	7	1	..	..	..	..			
" " " " " " " " " " " "	..	1	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..			
Disease of the ovaries	..	3	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..			
" " " " " " " " " " " "	..	2	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..			
Dropsy of the ovaries	..	13	..	1	..	..	..	..	1	1	3	1	2	..	..	..	..	..	..	..			
Hemorrhage of the uterus	..	..	..	..	..	..	..	..	..	..	1	3	1	..	..	..	..	..	..	..			
Inflammation " " " " " " " "	..	2	..	..	..	..	..	..	..	..	7	7	1	..	..	..	..	..	..	..			
" " " " " " " " " " " "	..	1	..	..	..	..	..	..	..	..	4	4	1	..	..	..	..	..	..	..			
Puerperal fever	..	15	..	..	..	..	..	..	..	3	11	7	1	..	..	..	..	..	..	..			
" " " " " " " " " " " "	..	25	..	3	..	..	..	..	..	..	4	7	1	..	..	..	..	..	..	..			
" " " " " " " " " " " "	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..			
Rupture of uterus	..	95	..	4	..	..	..	..	..	4	28	34	12	9	7	1	..	..	..	..			
Total	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95			
CLASS IX.—DISEASES OF THE ORGANS OF LOCOMOTION.																							
Caries	1	1	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..			
" " " " " " " " " " " "	2	1	2	1	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..			
Concussion of the spine	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Coxalgia	3	2	3	2	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..			
Disease of the pelvis	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..			
" " " " " " " " " " " "	5	6	4	4	..	2	1	1	2	..	..	1	..	2	..	..	..	..	..	..			
" " " " " " " " " " " "	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Effusion on spinal marrow	1	1	1	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..			
Fracture of spine	5	3	4	3	1	1	3	..	..	..	1	..	..	1	..	..	..	..	..	..			
Inflammation of the spine	10	13	6	3	1	1	2	4	2	1	2	2	6	1	2	3	..	..	..	..			
Rheumatism	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Total	29	27	21	12	2	4	4	11	6	3	3	4	7	4	2	3	..	..	..	35			
CLASS X.—DISEASES OF THE INTEGRUMENTARY SYSTEM.																							
Cancer of the skin	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..			
Eczema	1	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Psoriasis	..	1	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..			
Purpura	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Rupia	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..			
Total	4	2	2	2	4	..	..	..	..	..	..	1	1	..	..	..	..	..	..	6			

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division 2. Showing Location, Colour, Nativity, and Wards.

[illegible]

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division 2. Showing Location, Colour, and Wards.

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.		WARDS.																								UNKNOWN WARDS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				United States.	Foreign.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
CLASS 1.—ZYMOTICS, &c.—continued.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

TABLE V.—*Classified Mortality for the year 1861—Continued*
 Division 2. Showing Location, Colour, Nativity, and Wards.

DISEASES.	ALBINOES.	PEOPLE OF COLOUR.	COUNTRY.	Total States.	Foreign.	Tub. win.	WARDS.																								NEW CASTLE
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
CLASS I.—Zymotics, &c.—continued. <i>4th Quarter.</i> October, November, December.																															
Cholera infantum	5			20	9	7	4	3	2	1	3	1	2	1	1	1	2	1	1	1	2	1	1	2	1	1	2	1	1	1	
Diarrhoea				20	9	7	4	3	2	3	1	1	2	1	1	1	2	1	1	1	2	1	1	2	1	1	2	1	1	1	
Diphtheria				100	12	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Dysentery				13	7	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Erysipelas				6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fever				2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ bilious				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ congestive				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ camp				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ nervous				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ remittent				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ scarlet				191	6	1	10	3	5	2	7	6	2	1	7	7	3	3	7	11	1	11	2	1	2	1	2	1	1	1	
“ typhoid or enteric				61	20	7	3	1	3	1	1	4	3	5	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	
“ typhus				4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Whooping-cough				37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Measles				8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Smallpox				103	8	6	1	7	29	5	11	6	1	1	1	1	1	1	1	1	2	8	11	11	4	2	3	1	1	1	
Syphilis				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total fourth quarter	7	13	26	373	39	31	66	41	16	23	21	10	18	9	17	20	32	11	17	21	5	24	15	11	51	31	10	6	19	1	
Total annual mortality from epidemics	61	131	84	3679	255	130	217	237	99	171	120	58	181	71	66	101	131	125	109	110	203	184	138	233	317	256	108	78	114	178	
CLASS II.—UNCERTAIN OR GENERAL SEAT SPECIFIC DISEASES.																															
Abscess	1	2	3	38	6	3	1	3	2	2	1	1	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Anthrax	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Anæmia	3	1	1	16	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Cancer or scirrhus	1	1	1	38	27	4	1	3	1	3	1	4	3	1	4	4	2	3	2	3	5	3	3	2	2	1	1	2	1	1	
“ of breast	1	1	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Cramp	1	1	1	13	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Cyanosis	2	2	2	62	1	1	10	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Debility	41	63	5	375	175	76	52	40	21	39	36	25	35	26	27	21	11	19	27	17	22	31	37	10	13	5	10	10	10	10	
Disease of throat	7	25	10	178	92	11	11	13	4	13	12	2	14	9	6	7	9	7	10	3	12	13	12	15	10	11	1	1	1	1	
Dropsy	5	1	1	32	9	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gangrene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gout	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Hætic fever	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Hæmorrhage	1	4	1	48	21	3	2	3	1	4	6	1	5	6	1	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division 2. *Showing Location, Colour, Nativity, and Wards.*

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.		WARDS.																								UNKNOWN.
				United States.	Foreign.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
CLASS II.—UNCERTAIN OR GENERAL SEAT, SPORADIC DISEASES—continued.																														
Inflammation	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ of leg	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ of tonsils	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Infantilism	13	3	3	111	7	9	10	3	9	2	2	3	1	11	1	11	1	2	3	3	2	5	1	4	13	7	3	5	18	4
Marasmus	41	36	3	485	16	32	22	21	16	18	15	28	11	13	10	12	17	17	29	22	33	26	32	30	15	12	12	51	12	
Malformation	..	..	..	17	..	4	4	5	4	3	3	2	2	1	1	4	6	1	2	1	1	2	1	2	1	1	1	2	7	1
Scrofula	7	12	2	63	6	7	4	5	4	3	3	2	2	1	1	4	6	1	1	1	1	3	4	3	5	5	1	2	1	1
Sore throat.	..	..	..	..	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scars throat.	..	..	..	33	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberc mesenterica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tumours	..	..	..	1	13	9	1	4	1	..	1	3	..	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Ulceration	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ of throat	..	..	..	10	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	123	152	33	1761	385	155	152	116	57	100	86	56	103	65	59	76	65	46	62	77	115	84	118	104	169	125	55	43	51	201
CLASS III.—NERVOUS SYSTEM.																														
Apoplexy	..	..	..	86	59	17	9	9	8	9	6	4	8	7	5	9	5	5	2	4	5	3	3	6	5	10	2	3	3	20
Congestion of the brain	10	18	4	225	36	11	28	16	8	19	12	6	10	12	8	6	6	2	9	8	9	7	18	8	23	13	5	1	17	18
“	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Compression	11	27	6	600	23	13	32	33	16	32	20	15	25	14	11	13	21	21	17	13	41	31	47	26	68	47	11	11	19	29
Convulsions	..	..	..	9	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Congestion of the brain	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coup de soleil	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disease of the brain	1	1	3	99	9	4	5	9	2	2	6	2	4	3	3	6	3	2	7	4	17	6	1	3	3	14	..	..	..	..
Dropsy	..	..	..	213	3	6	10	10	12	9	7	7	8	2	7	7	9	9	9	4	16	7	11	11	20	14	3	7	5	13
Effusion	5	5	3	67	1	5	6	1	4	2	2	3	8	1	6	5	4	1	6	3	1	1	2	1	5	2	1	4	2	2
Epilepsy	..	..	..	10	7	5	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“	..	..	..	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fever of the brain	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydrophobia	1	8	4	278	22	5	30	16	10	16	5	6	12	8	11	14	7	5	12	17	12	19	17	26	13	5	6	3	13	10
Inflammation of the brain	..	..	..	6	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mania	1	1	6	12	10	10	4	2	2	1	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mania à potu	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Neuralgia	..	..	..	97	45	11	2	8	3	4	8	..	7	2	1	8	9	1	6	10	6	12	5	9	1	5	8	2	13	13
Palsy	8	12	7	20	7	2	2	2	3	3	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Softening of the brain	..	..	..	1	19	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	69	88	41	1751	236	101	137	106	72	98	70	47	80	59	68	67	56	66	63	130	74	115	78	153	129	33	67	117	46	

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division 2. Showing Location, Colour, Nativity, and Wards.

TABLE V.—Classified Mortality for the year 1861—Continued.
Division 2. Showing Location, Colour, Nativity, and Wards.

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.		WARDS.																								UNKNOWN.	WARDS.	
				United States.	Foreign.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
CLASS VI.—DIGESTIVE ORGANS—continued.																																
Colic	..	..	1	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Constriction of the bowels	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ liver	..	..	..	10	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disease of the liver	..	..	..	32	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ stomach and bowels	..	..	..	14	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dropsy of the abdomen	..	..	..	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dyspepsia	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enlargement of the liver	..	..	..	10	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hemorrhage of the stomach and bowels	..	..	..	1	5	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hernia	9	7	5	168	58	12	18	15	7	11	5	5	1	3	1	7	11	6	4	8	13	8	18	8	19	5	15	4	7	13	4	1
Inflammation of the stomach and bowels	5	2	3	36	25	6	4	6	3	3	3	3	1	1	1	2	1	3	1	2	2	2	1	2	1	3	7	3	2	2	1	9
“ “ peritonæum	1	1	..	19	20	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
“ “ liver	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Itens	..	..	..	7	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Intussusception	..	..	..	16	5	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jaundice	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Obstruction of the bowels	..	..	..	5	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stricture of the esophagus	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Teething	..	..	..	30	..	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ulceration of the stomach and bowels	..	..	..	1	2	1	1	2	2	1	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Worms	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	27	16	16	416	203	37	40	35	16	35	24	15	37	26	25	18	16	12	15	26	35	28	36	22	55	26	28	11	27	48	14	14
CLASS VII.—DISEASES OF THE URINARY SYSTEM.																																
Albuminuria	..	1	1	14	5	1	..	1	..	1	..	2	1	3	1	2	..	..	1	1	1	..	..	..	1	1	2	..	..	..	..	..
Cancer of the bladder	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ testicles	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diabetes	..	..	..	5	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disease of the kidneys	..	..	..	16	8	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ bladder	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ prostate gland	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Inflammation of the kidneys	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ bladder	..	..	..	12	13	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
“ “ prostate gland	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stone in bladder	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Uremia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	10	7	3	57	38	14	4	8	4	4	5	2	10	8	3	8	1	4	3	3	4	2	2	2	3	3	4	2	3	3	1	1

TABLE V.—*Classified Mortality for the year 1861—Continued.*
Division 2. *Showing Location, Colour, Nativity, and Wards.*

DISEASES.		ALMSHOUSE.	PEOPLE OF COLOR.	COUNTRY.	NATIVITY.			WARDS.																							
					United States.	Foreign.	Unknown.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
CLASS VIII.—DISEASES OF THE ORGANS OF GENERATION.																															
Cancer of the uterus	1	2	..	17	12	1	2	1	2	1	1	3	1	..	1	1	2	2	2	2	..	1	..	1	3	..	1	2	..	..	
" " uterine	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	
Dropsy of the ovaries	..	..	..	1	6	7	1	..	..	..	1	1	1	..	..	..	1	1	1	1	..	..	..	2	2	1	..	..	..	..	
Hemorrhage of the uterus	..	1	..	1	3	1	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	
Inflammation " "	..	..	1	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	
" " ovaries	..	..	1	7	5	3	2	1	..	..	1	1	..	..	..	..	1	1	2	1	2	..	1	3	1	..	..	..	3	..	
Puerperal fever	2	2	..	15	8	2	1	2	1	..	..	3	..	1	2	..	..	1	1	2	..	2	3	1	..	..	1	..	..	..	
" convulsions	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Rupture of uterus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Total	3	5	2	53	36	6	6	6	3	1	2	3	8	2	2	4	2	2	4	5	6	4	1	3	7	4	3	2	5	1	
CLASS IX.—DISEASES OF THE ORGANS OF LOCOMOTION.																															
Caries	..	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	
" of the spine	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Concussion of the spine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	
Coxalgia	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	2	..	
Disease of the pelvis	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
" " spine	1	2	..	8	2	1	..	..	..	1	..	..	..	..	..	..	..	..	1	1	1	1	1	1	1	1	2	..	..	..	
Effusion on spinal marrow	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Fracture of spine	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	1	1	1	1	1	..	..	..	..	..	..	1	..	1	..	
Inflammation of the spine	..	1	..	6	2	..	..	..	..	..	..	..	1	..	..	1	1	2	2	1	2	..	3	..	..	1	..	1	..	..	
Rheumatism	2	1	4	18	3	1																									
Total	3	4	4	43	10	3	2	5	1	2	1	1	3	2	1	3	2	3	3	..	4	1	1	1	4	..	1	2	3	5	1
CLASS X.—DISEASES OF THE INTEGUMENTARY SYSTEM.																															
Cancer of the skin	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Eczema	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	
Pomphigus	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Purpura	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	
Rupia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Total	..	..	..	5	1	..	1	1	..	..	..	..	..	..	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE V.—*Classified Mortality for the year 1861—Concluded.*
Division 2. *Showing Location, Colour, Nativity, and Wards.*

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.		WARDS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
				United States.	Foreign.	Unknown.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
CLASS XI.—OLD AGE	2	13	6	95	97	11													8	5	2	15	10	8	2	3	9	4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</

ART. X.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1861. *Sept. 25. Rupture of the Liver.*—Dr. LIVEZEY presented a specimen of this lesion, and read the following history of the case:—

Martin Weller, a German, aged 30 years, whilst driving a heavily loaded beer wagon, was thrown from the seat and run over, the wheels passing over his abdomen. The accident happened about 8 A. M., on Wednesday, Sept. 18, and he was admitted into the Pennsylvania Hospital about two hours and a half afterwards.

His pulse was exceedingly small, feeble, and frequent, his skin cold and clammy, his intelligence perfectly clear, and his pupils somewhat contracted. He pointed to the right hypochondrium as the region of the greatest pain. The abdomen was large but not tympanitic. He complained of being exceedingly uncomfortable, but did not at first appear to be particularly so when on his back or left side. Towards evening he assumed a position on his right side, and then expressed himself as unable to rest in any other. In fact the mere effort to change his position produced the most intense agony. Whiskey and laudanum were administered, and he reacted somewhat, shortly after his admission.

The next day he was much feebler; his pupils were still contracted, and the clamminess of skin had increased, as well as the pain in his abdomen. During the night his mind had wandered, but during the day it was perfectly clear. He was evidently sinking from internal hemorrhage, and it was surmised that he had sustained a rupture of the liver. He never had any difficulty in voiding his urine, which seemed normal.

He died the next morning (the 20th), at 10 o'clock.

Autopsy, ten hours after death.—Not much rigor mortis. Abdomen large and dull; on puncturing it, about three quarts of bloody fluid escaped. The peritoneum was found red, and roughened by recent exudation.

There was considerable distension of the intestines by gas. The liver was large, its upper surface being on a line with the nipple. Near the suspensory ligament, on the right side, there was found a very extensive laceration extending from in front of the ligament, backwards and over to the left, under the ligament to the posterior surface; this laceration was zigzag in shape, about three inches long, and penetrated deeply into the substance of the liver.

The kidneys were both somewhat enlarged, with considerable evidence of fatty degeneration; all the other viscera of the abdomen, as well as those of the thorax, were healthy.

In this case the examination revealed the cause of his assuming the position on his right side; showing that when in any other, the suspensory ligament being put upon the stretch, the tendency was to separate the edges of the wound, and thus, after inflammation had been set up, to give rise to the most intense pain.

Compound Fracture of Humerus; Death (probably) from Pyemia.—The following paper, communicated by Dr. JOHN ASHURST, Jr., was then read:—

George D——, aged 14 years, was admitted to the Pennsylvania Hospi-

tal on the 29th of July, 1861, suffering from a compound fracture of the right humerus. The fracture was oblique, the upper fragment projecting anteriorly; there were two lacerated wounds, one anterior and superior, communicating with the seat of fracture, the other smaller and affecting the soft parts only. The patient presented the evidences of a feeble constitution, being somewhat pale and anemic, and unable to endure any amount of fatigue, his face flushing quickly with any excitement. His previous history as far as it could be ascertained was that about three years before the accident he had had an attack of measles, and a month or more before the accident had suffered from chronic diarrhœa and great debility. Diuresis was also very frequent, his water having sometimes to be passed every half hour.

The treatment of the fracture was conducted according to the usual methods, and for three or four weeks the case seemed to progress as favourably as could be expected in view of the constitutional complications. Tonics and stimulants were given on account of the debility of the patient, but there were no symptoms to cause any anticipation of a disastrous result. After this time, however, the patient began to grow daily weaker and weaker. The amount of stimulus was increased, a wineglassful of milk punch and the same quantity of strong beef essence being given every alternate hour; while the wound, which had assumed the flabby appearance of an indolent ulcer, was dressed with stimulating washes. On the first of September, I made an examination of his urine, hoping to obtain some light on his true pathological condition (a step which I would have taken before had I been aware of his frequent diuresis). There was an enormous deposit from his urine, which at first appeared to be pus, but upon microscopic examination proved to consist of the soluble phosphates in large amount.

To prevent this constant drain upon the system, and to relieve also the chronic diarrhœa from which he still suffered, a combination of aromatic sulphuric acid and laudanum was administered, with the effect of checking the intestinal disorder, though not of altering essentially the nature of the urine. He, however, continued to grow feebler day by day; his pulse small, compressible and very rapid, 120 or 130 in the minute, and his skin presenting that peculiar hue which has been likened to a "cold buckwheat cake." Nervous twitchings about the mouth, and subsultus tendinum during sleep, also gave evidence of his low condition. A large amount of unhealthy pus began now to be daily discharged from the wound, and evidently found its origin in the neighbourhood of the axilla.

Up to this time there had been no marked suffering, the patient complaining merely of weakness. On the morning of Monday, Sept. 9th, while I was dressing his arm, his face suddenly changed, becoming almost hippocratic; but the immediate administration of stimulus revived him, and during the day he appeared no worse than usual. On my evening visit to the ward, however, there was marked subsultus and picking at the bed-clothes, and the hippocratic face in all its ghastly features. At 11 P. M., I observed symptoms of dyspnœa, and for the first time the patient complained of discomfort; he was evidently moribund, and expired about twenty minutes after four on the morning of Tuesday, 10th September.

Autopsy, twelve hours after death.—There was but slight rigor mortis; there was some swelling of the feet, but no true œdema. The kidneys were found much congested, and with several points of what seemed to be commencing suppuration.

The stomach and small intestine were covered on their internal surfaces with sheets of mucus, giving in the stomach the appearance of a pseudo-membranous deposit. The stomach was pale and flabby, but the intestine hyperemic. The pancreas was exceedingly dense and hard. The spleen was somewhat softened and the mesenteric glands considerably enlarged and discoloured. The liver presented no abnormal appearances.

In the thorax the pulmonary and costal pleurae on the left side were found extensively adherent. The lungs were infiltrated and congested, giving in some parts the appearance of pulmonary apoplexy, and in others that of the peculiar condition known as atelectasis pulmonum.

There were patches of congestion in the lungs, with a central puriform deposit.

There was considerable effusion into the cavity of the pericardium, and the heart itself was enlarged and flabby. In the wall of the right ventricle, near the apex, beneath the endocardium, and in no way connected with the cavity of the ventricle, was a considerable deposit of puriform matter.

The blood throughout the body was watery. The fracture of the humerus was found to be entirely disunited, although pretty firm union had occurred during life; this may probably have happened from some violence in removing the body from the ward to the dead-house. The upper fragment on its external surface, was denuded of periosteum from the seat of injury to the head of the bone.¹

A probe passed upwards from the wound penetrated without resistance, and was apparently first arrested by the acromion process of the scapula. On opening the shoulder-joint, a free gush of pus indicated the position of the abscess which had latterly discharged through the wound.

Virchow, in his *Lectures on Cellular Pathology* (page 203 of Dr. Chance's translation), says: "The same thing which we have hitherto considered in the veins, occurs also in the heart. In the right ventricle especially, we not unfrequently see what are called purulent cysts between the trabeculae of its walls. They project into the cavity like small rounded knots and from little pouches, which, when cut open, contain a soft pulp that may present a completely pus-like appearance.

"People have plagued themselves to an indefinite extent about these purulent cysts, and invented all possible theories to account for them, until at length the simple fact came out that their contents are frequently nothing more than a finely granular pulp of an albuminous substance which does not offer even the slightest resemblance in its more intimate structure to pus."

Dr. STOKES, on the other hand, in his work on *Diseases of the Heart and Aorta* (page 112), says: "Abscess of the walls of the heart may be occasionally met with, but we must not confound a true phlegmonous abscess with the purulent deposits to which in common with other organs the heart is liable in cases of phlebitic disease."

Whether the deposit of puriform matter found in this case in the wall of the right ventricle, was the "albuminous substance" spoken of by Virchow, or whether it was really a "purulent deposit," such as Stokes mentions, I am not prepared to say.

¹ In preparing the humerus for the hospital museum, it was found that the head of the bone was completely detached from the shaft, and separated from it by an abscess filled with a fetid pus.

Abscess of the Liver.—Dr. C. C. LEE presented a specimen of this disease, with the following history:—

Chas. Myers, a German seaman, æt. 33, was admitted to the Penna. Hospital Sept. 14, 1861. He had made several voyages to South America and the East Indies, and escaped illness, although nearly all the crew were ill; during the last year, however, he had not been to sea, but had worked at ship-rigging along the wharves. Six months before admission to the hospital, he had been attacked with dysentery, which never entirely subsided; he had also occasional chills, followed by fever, but never exhibiting any regular periodicity. About the 1st of August, his feet became œdematous, and the anasarca gradually ascended, but was always greatest in the right leg. Two weeks later the abdomen swelled, simultaneously with which the patient had severe pain in the back, and difficult micturition. On admission he had orthopnoea, and constantly complained of pain in the epigastrium, extending into both hypochondriac regions. He had lost flesh since the beginning of the attack, and had incessant diarrhœa (never passing blood, according to his repeated assertion), but no vomiting. His urine was not albuminous, but showed dense deposit of phosphates with a few amorphous urates. He lingered in great debility for ten days, and died on the 23d September.

At an *autopsy* made seventeen hours after death, very little rigor mortis was found; upper extremities greatly emaciated, lower œdematous. Heart and lungs healthy. In the pericardium about 3ij of serum were found; nearly a pint in left pleural cavity, and about three quarts in the abdomen.

The *liver* was enormously enlarged, and bound to the diaphragm by recent adhesions; while raising it in situ, the posterior wall of the right lobe was perforated by the finger, when the immediate escape of a large quantity of thin greenish pus showed the existence of an abscess; in fact, the whole right lobe was excavated into one enormous abscess, which contained $2\frac{1}{2}$ quarts of pus.

The stomach and other abdominal organs were healthy except the colon, the entire mucous surface of which was ulcerated to a marked degree. This explained the dysenteric symptoms, and was probably the cause of the hepatic abscess; in Dr. Budd's work on the Liver, as well as in that by Mr. Annesley, on the Diseases of India, numerous similar cases are given.

The whole length of the right iliac vein was found completely ensheathed by enlarged lymphatic glands, compressing its contents, and explaining the greater œdema observed in the right lower extremity.

Cancer of Œsophagus and Trachea.—Dr. LEE exhibited also a diseased œsophagus and trachea, with the following history:—

Margaret H., aged 55, was admitted to the medical ward of the Penna. Hospital, July 3, 1861. For several months she had experienced occasional attacks of dysphagia, but these were so rare that at first she paid little attention to the subject. About one month before her admission, however, this difficulty suddenly became greatly increased, and was attended by slight sore throat. In a few days a little dyspnoea also appeared, chiefly during and after eating. She consulted a physician, who detected no mechanical impediment in the throat, and treated her for laryngitis, but as she obtained no relief, she became alarmed and applied for admission to the hospital. When first examined, a firm resisting mass was distinctly felt, lying across and apparently embracing the trachea about $\frac{1}{2}$ inch below the thyroid gland; it was very deep-seated, with ill-defined edges, but immovable.

Internally, no redness or swelling could be observed, even with the laryngoscope, but a stomach tube, when passed down the œsophagus, encountered an obstruction exactly corresponding with the external swelling. There was no enlargement of the axillary glands, but in the right mamma there existed a small, firm, movable tumour about the size of a split pea. The case was diagnosed as "constriction of the œsophagus," probably malignant, and was treated by mechanical dilatation and tonics; but the inability to swallow solid food and the dyspnœa gradually increased, and the patient died of suffocation, August 22, 1861.

An *autopsy*, made at the patient's house sixteen hours after death, revealed well-marked cancerous degeneration of the deep-seated glands of the neck, and a large scirrhous mass on the left of the trachea, just below the thyroid gland. This had apparently sprung from the wall of the œsophagus, into which it had ulcerated; its interior was filled with sanious cavities, communicating here and there with the trachea, exactly as described by Rokitsky, who says (vol. ii. p. 11), "cancerous degeneration generally affects the circumference of the œsophagus, and thus gives rise to annular stricture, the extent of which must correspond to the extent of the carcinomatous deposit . . . The metamorphosis of the morbid product frequently gives rise to large sanious cavities, the carcinomatous parietes of which are covered with fungoid granulations, and with which the trachea communicates above and below in a transverse or slanting direction." At two points in this case the cancer had ulcerated into the trachea, nearly closing it. Under the microscope, a section showed well-defined filiform and multiform cells; there were very few candate, and no epithelial cells, the condensed nature of the tumour causing the multiform variety to predominate. Some of the large lymphatic glands in the vicinity were similarly affected, but all the glands of the mediastinum and the heart and lungs were healthy. No other lesions were detected.

Oct. 9. Single Kidney.—Dr. PACKARD exhibited a specimen of this abnormality, removed by him from the body of a patient who had died in the Military Hospital, of enteric fever. Nothing remarkable was observed in any other organ.

The left kidney, ureter, and supra-renal capsule were wholly wanting. On the right side, the kidney was at least twice the usual size, and the capsule rather larger than common. The former organ was somewhat rounded, and its hilus only slightly depressed.

The urinary bladder was perfectly symmetrical, but not the slightest trace of a ureter existed on the left side.

A somewhat similar instance is on record in the *Transactions of the Boston Society for Medical Improvement*, vol. iv. p. 11. It was observed by Dr. Thayer, of Keene, N. H., but differed from the present case in that a capsule existed, although there was no trace of the left kidney.

Cirrhosis of Liver; Hemorrhage from an Ulcer in the Œsophagus.—Dr. PACKARD also gave an account of an autopsy made by him a few days since, which presented features of marked analogy with a case reported to the society by Dr. Kane, in February last.

Dr. Kane's case was that of an Irishman æt. about 55, an old drinker; the subject of the present account was a lady æt. 73, of very abstemious habits. In the latter case, as in the former, ascites, hæmatemesis, melaena, and exhaustion were the chief ante-mortem phenomena.

An autopsy showed an immense deposit of subcutaneous fat, cirrhosis

of the liver, a fatty condition of that organ, of the heart, and probably of the pancreas, and atheroma of the aorta. A very large quantity of serum was effused into the peritoneal cavity.

The source of the blood vomited and discharged by stool was found to be, as in Dr. Kane's case, an ulcer seated near the gastric end of the œsophagus; the veins in the neighbourhood were dilated, and one of them at the ulcerated spot had given way.

Nov. 13. Cancer of the Œsophagus.—The Secretary presented this specimen for Dr. W. F. NORRIS, and read Dr. NORRIS's account of the case as follows:—

Lavinia Harnish, aged 45, was admitted into the Pennsylvania Hospital October 8th, 1861, for a tumour of the neck.

She stated that four months previously she first experienced some slight dysphagia, which continued steadily to increase, so that at the time of her admission swallowing was difficult, although not painful. About one month after she noticed this, she perceived a swelling in her neck, which has since gradually enlarged.

The swelling was situated on the front of the neck immediately below the thyroid cartilage, and extended downwards between two and three inches. It was hard to the touch, giving no pain when handled, and rising to a very slight extent in the effort to swallow. Her respiration was stridulous; she stated that this had come on suddenly four days previous to admission. In the four months during which she has been complaining, she has lost flesh rapidly, and is at present emaciated and sallow.

After admission into the hospital she rapidly sank, deglutition became more difficult, respiration more croupy and painful; and she died on the afternoon of the 12th, the fourth day after entrance.

An examination of the body was made 14 hours after death. The thoracic and abdominal viscera were all found to present a healthy aspect, except that there was some hypostatic congestion of the lungs. On removing the sternum a hard nodulated tumour, about three inches in length, consisting of indurated and enlarged lymphatic glands, was seen adhering to the manubrium. In the neck, a tumour was found extending from the thyroid body about three and a half inches downwards, chiefly on the left side, the portion on the right consisting mostly of enlarged glands. On opening the œsophagus from behind, a large indurated mass was seen, growing apparently from the submucous cellular tissue, which nearly filled up the calibre of the tube, leaving for the passage of food a space not more than the fourth of an inch in diameter. One inch below the cricoid cartilage the diseased tissue had ulcerated through into the trachea, which was reddened and inflamed from thence down to its bifurcation.

The disease involved none of the other tissues of the neck. A portion of the fluid pressed from the tumour, when examined by the microscope, showed numerous irregular, polynucleated, caudate cells.

Dr. Hewson stated that this patient had been under his care some years ago, when he was resident physician to the hospital. She applied to him last summer on account of the tumour, which grew smaller under the use of iodide of iron internally, and iodide of cadmium externally. He thought the opening into the trachea had occurred shortly before her admission into the hospital.

Dr. Lee remarked, that at the autopsy a careful search was made for other deposits in the body, but none were found. He alluded to an

analogous case reported by him to the society in September, and quoted Rokitsanky's statement that oesophageal cancer is apt to be unassociated.

Abscess of Prostate Gland.—Dr. LEE, in presenting this specimen, related its history as follows:—

Frederick Evans, æt. 33, was admitted to the surgical wards of the Pennsylvania Hospital on Oct. 17, 1861, with distressing prolapse of the rectum.

This had existed ten days, coming on after a severe debauch; the patient was, indeed, an habitual drunkard, and, having no home, was often exposed all night in the street. For several days before the rectum came down he experienced some difficulty in urinating, but this greatly increased after the prolapsus occurred.

At the time of his admission his urine was dribbling away; as the bladder was much distended, the attending surgeon attempted to introduce a catheter, but failed, although it passed readily as far as the prostate gland. This attempt was made several times without success; he was given a warm bath and demulcent drinks, after which he passed a gill of urine, but with great effort and with burning pain in the perineum. The following day a catheter was easily introduced, and after this he passed his urine without assistance. No contraction of the sphincter ani existed, and the rectum was returned without difficulty, but it constantly came down in spite of all the efforts made to retain it. This was complicated by a most exhausting diarrhœa, which no astringents seemed able to control. From the first the patient was stimulated freely, but it was with difficulty that an attack of delirium tremens was averted. He had frequent rigors, and his diarrhœa and general exhaustion increased daily; he gradually sank, and died on Oct. 28, eleven days after his admission to the hospital.

Autopsy, fourteen hours after death.—The thoracic viscera were found healthy; the brain was not examined. The liver was enlarged and fatty, as in the first stage of cirrhosis; kidneys enlarged and congested, but not otherwise diseased. The bladder and urethra were dissected out entire, and an examination proved that there was no stricture, but showed the existence of a large abscess involving both lobes of the prostate; this had apparently in its forming stage constituted the obstruction to the introduction of the catheter. The bladder was healthy, and the only other lesion was an ulcerated state of the large intestines, which extended from the head of the colon to the anus. The rectum was almost denuded of its mucous membrane, and was raw and irritable in the highest degree.

Nov. 27. Cystic Formations in the Lungs.—Dr. PACKARD presented a specimen of this character, removed by him from the body of a maiden lady, æt. 42. Death had occurred after several days of violent delirium; symptoms of gangrene of the lung had also shown themselves.

The cysts were of various sizes, larger and more numerous in the left than in the right lung. Each one was lined by a perfectly smooth membrane, and had a distinct wall. The left pleura was universally adherent, more strongly at its upper part; the whole lung was carnified, and a large portion near its middle was in a state of incipient gangrene. The right lung was adherent at its upper part, which contained a few small cysts. The cysts were wholly unlike the old healed tuberculous cavities sometimes seen in the lungs.

Other lesions were observed in the body, interesting from their resemblance to those presented in chronic alcoholism, this lady having been for

years in the habit of using sulphuric ether freely as an anodyne. The brain was much congested throughout, and the septum lincidum was very much softened. A good deal of serum had been effused in the subarachnoid space, and some lymph deposited in the outer layer of the arachnoid membrane.

The heart was fatty, and the aorta extensively atheromatous; all the valves were healthy.

The liver was very fatty, and tilted so that its right lobe extended downwards. The kidneys were much congested; the supra-renal capsules healthy. No other disease was observed.

Dec. 11. Luxation with Fracture of Sixth Cervical Vertebra.—Dr. ASHURST exhibited this specimen, the history of which was as follows:—

Patrick T——, a young, healthy, and very well developed man, was admitted into the Pennsylvania Hospital on the afternoon of Friday, December 6th, 1861.

While engaged in loading a vessel, he had been struck upon the back of the neck by a sack of salt, weighing about 200 lbs. The sack forced his head down upon his breast, and then fell over in front of him. When admitted into the house, he was completely paralyzed as to both sensation and motion, below the nipple on either side. His right arm was almost powerless, and the motions of the left arm much impaired. The head was bent to the right side, but motion of the neck was attended by no more pain than would naturally arise from the contusion produced by such an accident. His bladder was of course paralyzed, and his water had to be drawn off by means of a catheter at proper intervals. During the ensuing night and day he suffered no pain, but his thirst was excessive, and his skin became very hot, giving to the hand the sensation known as “calor mordicans.” On Saturday evening he was seized with dyspnœa, which was at first accompanied with pain about the epigastrium. This, however, shortly disappeared. From time to time there was regurgitated into his throat a dark, grumous fluid, which he had some difficulty in evacuating from his mouth.

The dyspnœa now gradually increased, until the afternoon of Sunday, the 8th inst., when death put an end to his suffering. An autopsy was made seven hours later, with the following results: There was a very large clot effused among the dorsal muscles on the left side. An almost complete separation existed between the sixth and seventh cervical vertebrae, the intervertebral substance with some spiculæ from the sixth, adhering to the seventh vertebra.

There was a good deal of laceration of the ligaments, and investing muscular tissue, and some bloody effusion both within and without the vertebral canal. The spinal cord itself was not divided.

This was an obscure case, for although the rational signs of fracture or dislocation were present, there was no inequality in the spinous processes such as usually indicates a fracture, nor was there the immobility almost universally accompanying a luxation.

1862. Jan. 8. Rupture of the Lung, without Fracture or Wound of Thoracic Walls.—Dr. LEE presented this specimen, and gave its history as follows:—

John Bradley, a strong, healthy lad, æt. 18, was admitted to the Pennsylvania Hospital late on the evening of Jan. 4th, 1862. About five hours before, while driving a wagon heavily laden with grain, he had fallen

under it, and two wheels had passed obliquely over his left shoulder and chest. He stated that at first he felt but little pain, and was able to rise and run some twenty or thirty yards after his horses.

While running he suddenly became faint and fell in the road, after which he remembered nothing until he was brought to the hospital.

When admitted, he was cold and collapsed, groaning, and occasionally shrieking with pain, which he referred to the epigastric region and the left side of the chest. The left arm was powerless, and painful when moved; his pulse was 120 and tolerably full, his respiration frequent, gasping, and always causing an increase of the pain. There was great tenderness about the chest and the upper part of the abdomen, and frequent vomiting of small quantities of blood; this, though dark, was *rather frothy*, and was not coagulated. A careful examination revealed no fracture of the ribs or shoulder; no external lesion, indeed, beyond contusion in the track of the wheels. The hurried and painful respiration suggested injury to the diaphragm, but this point could not be then decided. Auscultation showed puerile respiration on the right side, while on the left, respiration was inaudible above the sixth rib, and below that point hydro-pneumothorax evidently existed, for at every inspiration the air could be heard rushing from the lung into liquid which was apparently collected in large amount.

Percussion on the right side was normal; on the left it was remarkably resonant both in front and behind, above the sixth rib. Below this it was quite flat; partial or complete collapse of the lung was hence inferred.

The *treatment* consisted in the free administration of stimulants and anodynes, with heat to the extremities and hot fomentations to the chest until reaction was secured, and then slight diaphoretics were given. During the night, the patient became more quiet and rallied in strength, but the following day pneumonia supervened; under this complication he slowly sank, and died on the third day after admission.

Autopsy, six hours after death.—Rigor mortis well-marked; no external evidence of injury. On removing the sternum the right lung was found healthy on the surface, but had numerous recent pleuritic adhesions; anteriorly it was crepitant, but posteriorly, the pneumonia had advanced to the stage of red hepatization, a thin section sinking instantly in water. In the left pleural sac there was fully a quart of bloody serum, and the left lung was collapsed to scarcely half its natural size, mottled with large ecchymoses, with, here and there, a small patch of pulmonary emphysema. On carefully examining the fissure between the upper and lower lobes, a small rupture was detected, through which air was easily forced by means of a syringe introduced into the left bronchial tube. No fracture or lesion of any sort existed in the ribs or sternum, so that the case presented the very rare feature of rupture of the lung, from simple compression of the thoracic walls. The heart and all the abdominal viscera were quite healthy.

A few such cases are on record, but their extreme rarity makes them at once instructive and interesting. In the first vol. of the *Mém. de la Soc. de Chirurgie de Paris*, M. Gosselin relates two cases of ruptured lung from external violence without fracture of the ribs or external wound, both of which recovered. Again, in *Holmes' System of Surgery*, vol. ii. p. 386, Mr. Alfred Poland has collected the history of several analogous cases; and another case, in which, from sudden compression of the front of the chest, a rupture occurred at the bifurcation of the trachea, is to be found in Mr. Lonsdale's *Treatise on Fractures*, p. 239. The cause or causes of such lesions are very obscure. The following explanation, offered by M. Gosse-

lin, is, perhaps, the most probable: that at the moment of receiving the injury, the patient makes a sudden full inspiration which fills and distends the lungs, while the air, prevented from escaping by occlusion of the larynx, thus becomes pent up in the lung-tissue, and the lung necessarily gives way, as it cannot recede from the superincumbent pressure. It is just to add, that the attending surgeon, Dr. Edward Hartshorne, while discussing the probable etiology of the injury, had formed precisely the same opinion before seeing M. Gosselin's memoir.

Cystitis.—Dr. ASHURST showed an inflamed and thickened bladder, with the following history:—

Mahlon G. S—— was admitted into the surgical ward of the Pennsylvania Hospital, on December 18th, 1861. He had been suffering from a slight chronic bronchitis for some time; he had also a good deal of irritation about his bladder, which, however, had not annoyed him sufficiently, before this time, to induce him to consult his physicians for that symptom. The patient was quite an old man, his mind was very much weakened, and for years he had had some enlargement of the prostate gland. The irritability of his bladder was now very great, and his desire to pass water almost constant.

On the morning of Dec. 24th, he was found to have become suddenly much worse. His mind was entirely gone, and the whole surface of his body was covered with petechiæ. He gradually sank, and died during an effort to void his urine, about 1 A. M. of Christmas morning. An *autopsy* was made seven hours after death with these results. Rigor mortis well-marked: skin and conjunctivæ slightly yellow: there were petechiæ over all the body, but more especially upon the legs. The lungs were very much congested and softened, but still crepitant. Both ventricles of the heart were filled with enormous fibrinous clots, which extended into both the aorta and pulmonary artery, nearly filling their entire calibre. There was a small bead-like deposit in one fold of the valve of the pulmonary artery.

The left kidney was contracted; it had a large serous cyst on its posterior surface, and a small one on its anterior. The bladder was very much inflamed and softened, and the prostate gland enlarged. All the other organs examined appeared healthy.

Tumours of the Dura Mater.—Dr. W. F. NORRIS exhibited the dura mater and brain of an epileptic patient, with the following account of the case:—

Joseph Lewis, aged 32, was admitted into the hospital February 16th, 1861, suffering from facial neuralgia. He was discharged cured, March 5th, readmitted June 10th, with epileptiform convulsions, and discharged relieved, July 27th.

He was readmitted November 25th, 1861, with epilepsy. He had well marked and frequently recurring paroxysms, during which he had universal muscular spasms, perfect insensibility, foaming at the mouth, and grinding of the teeth. The paroxysms were of varying duration, and would pass off, leaving a dull stupid state for hours afterwards. His memory and intellect were much impaired, he had great difficulty in speaking, with partial paralysis of the right side, causing a tottering walk. He complained constantly of violent pain in the forehead, and at times in the left side of the head, and would frequently exclaim "Oh, my head is splitting."

He was much emaciated, appetite tolerable, bowels constipated. Died January 4th, 1862.

Autopsy, six hours after death.—Rigor mortis commencing. Thoracic and abdominal viscera healthy; colon and rectum distended with feces. The brain was removed with its membranes, and weighed 52 ounces. On attempting to separate the dura mater from the brain, there was found a hard tumour growing from its under surface, forming a flattened patch about two inches square, compressing the left hemisphere and causing a depression of the cerebral substance. In one place it appeared to penetrate through the cineritious substance and form attachments to the white matter of the cerebrum.

There was also a smaller tumour of a similar nature, about half an inch in diameter, in the summit of the right hemisphere; it also depressed the cerebral substance, but did not adhere to it. A section of the tumour placed beneath the microscope showed a distinct fibrous stroma with fat.

Blood-clot within the Dura Mater.—Dr. DA COSTA exhibited a clot, about the size of a fist, situated between the dura mater and the skull.

An unknown man was admitted into the medical ward of the Philadelphia Hospital on the 5th of January, about 4 o'clock in the afternoon. He was perfectly comatose. His cheeks flapped during the act of breathing; the respiration was laboured, and the pulse scarcely perceptible. The pupils were contracted, and insensible to light. There was complete paralysis both of the upper and lower extremities.

It was very evident that he was labouring under compression of the brain, but nothing positive could be known of its commencement, for all we could learn of his previous history was, that he left home in search of drink, and was brought to the hospital from a police station.

Shortly after admission, a large blister was applied to the back of the neck, and dry cups all over the chest; after the bowels had been thoroughly emptied, stimulating injections of assafetida and turpentine were employed, as well as sinapisms to the stomach and feet, and stimulating frictions to the limbs. The head was shaved, and ice and cold water applied successively. An attempt was made to give him some medicine by the mouth, but was unsuccessful, as he was unable to swallow. Whilst this treatment was carried out, he was observed to be thrown, at intervals, into short convulsions, similar to those occurring in the last stages of some cases of delirium tremens. The pulse became a little stronger, but there was never consciousness, or decided reaction. After remaining twenty-eight hours in this condition, he died.

At the *autopsy*, the cause of the cerebral disturbance was fully revealed. A clot of dark blood, about the size of a man's fist, was found on the left side, between the skullcap and the dura mater. It was firmly adherent to the membrane, which itself was at that point thickened, and contained plates of bone between its layers, about an inch in diameter. The other coverings of the brain appeared healthy, with the exception of a few firm adhesions between the dura mater and the arachnoid, in the neighbourhood of the bony plates. After the removal of the dura mater, the most striking feature noticed was a decided depression on the part of the cerebral hemisphere corresponding with the position of the clot. The vessels of the brain were filled with blood, but its substance looked healthy. The skullcap was slightly indented, and the bone was somewhat roughened over the seat of the clot. There were no signs whatever of external violence. The changed state of the dura mater, and perhaps of the skull itself—evidently the

result of chronic lesion—had predisposed to the hemorrhage, but what had been the immediate exciting cause is unknown.

Jan. 22. Cases of Injuries of the Head.—Dr. JOHN ASHHURST, Jr., presented two specimens of fracture of the skull, with the following histories:—

CASE I. This patient, age uncertain, was admitted on January 9th, 1862, at 10 A. M., in a comatose condition. There was a great deal of ecchymosis of the left eyelids and ear. He had the peculiar form of respiration which has been called the “apoplectic whiff,” and partial paralysis of the right side. While in the hospital he had several convulsions. He died at 12.45 the following night.

Autopsy, sixteen hours after death.—Rigor mortis well marked. There were two small superficial cuts in the scalp, and a bruise over the right temple.

On the left side there was a large amount of blood effused (several ounces in quantity) between the scalp and cranium. There was an extensive radiated fracture of the left side of the cranial vault, extending from the orbit to the occipital protuberance, and involving the entire left side of the calvaria; there was no displacement whatever. The fracture extended into the right orbit also. There was a very large clot over the whole left half of the dura mater.

The heart was softened; the other organs healthy.

CASE II. Solomon L——, æt. about sixty-five, was admitted on Jan. 19th, about 12.30 P. M. During the previous night he had fallen through a bridge at Phoenixville, where he was found in the morning and brought down at once to the city. When he entered the hospital he was very much prostrated, icy cold, soporose (partly from drunkenness), with a slight “apoplectic whiff,” and the mouth somewhat distorted. There was a watery discharge from the left ear, and great ecchymosis of the left eyelids. These and the other rational symptoms indicated fracture of the base of the skull. There was no dyspnoea. Under treatment the man reacted, but sank suddenly and died at 10.30 P. M.

Autopsy, seventeen hours after death.—Rigor mortis well marked. A bloody effusion existed between the scalp and the cranium.

There was an extensive comminuted fracture of the petrous portion of the left temporal bone, involving the meatus auditorius, reaching into the frontal bone above and the occipital below, and terminating at the foramen magnum. There was a clot on the left side of the dura mater; the brain was somewhat congested, but otherwise healthy.

There were fractures of the 2d, 3d, 4th, 5th, 6th, and 7th ribs, some of them comminuted, with slight emphysema of the neck and chest. During life, neither had the emphysema been perceived, nor the costal fractures recognized, the brain symptoms diverting attention from the evidences of any other injury, and the prostrate condition of the patient forbidding any prolonged examination.

Much blood was effused in the anterior parietes of the abdomen, and along the course of the psoas muscles, behind the peritoneum. There were cysts in both kidneys, the largest on the kidney of the right side. They did not communicate with the pelvis, and contained a dark brown semi-solid mass which upon microscopic examination by Dr. Wm. F. Norris, was found to consist of a yellowish granular mass with cells about twice the size of blood corpuscles, some of which contained oil globules.

The liver was somewhat fatty; the other organs healthy. In connection with these cases, Dr. Ashhurst read the following account:—

CASE III. An unknown white woman, middle aged, admitted December 23d, 1861, about 11.30 P. M. in a comatose condition, with occasional convulsions. The saliva which flowed from her mouth was tinged with blood. She died in a convulsion about 4 A. M. on December 24th.

Autopsy, nine hours after death.—Rigor mortis but slight. There was a large bruise over the right eye and right side of the face, on each hand and each knee. There was much effused blood, partially clotted, between the scalp and the skull, a small clot between the skull and dura mater, and considerable effusion between the membranes and the brain.

There was also a clot in the membranes on the anterior surface of the medulla oblongata, and a large amount of liquid blood flowed from the vertebral canal around the medulla. There were two small exostoses on the left side of the middle fossa at the base of the skull.

The pleurae were adherent on both sides, especially the left; there was no pleural effusion. There was about half an ounce of fluid in the pericardial sac. The right lung was greatly congested, the left only moderately so. The lung tissue floated in water. There was a fibrinous clot in the right ventricle of the heart. The liver was fatty.

These cases are interesting as showing the diagnostic inferences as to the existence of fracture to be drawn from the orbital ecchymosis and from the watery discharge from the ear. The former is generally supposed to characterize fractures of the base of the skull only; but in my first case the fracture was of the vault.

It would seem, therefore, rather to indicate fracture extending into the orbit, whether originating above or below.

My first and third cases differed merely in the greater profundity of the coma, in the first the partial paralysis (which might have arisen from other causes than fracture) and this orbital ecchymosis. In both, convulsions occurred; and in every other respect their symptoms were identical. I hence regard this as a very important and almost pathognomonic sign.

Watery discharge from the ear is eminently characteristic of fracture of the temporal bone, and when present, of itself renders the prognosis very unfavourable.*

In relation to both these symptoms, Mr. Prescott Hewett's article on *Injuries of the Head*, in *Holmes' System of Surgery*, is very well worthy of being consulted.

REVIEWS.

- ART. XI.—1. *Notes on the Surgery of the War in the Crimea, with remarks on the Treatment of Gunshot Wounds.* By GEORGE H. B. MACLEOD, M. D., F. R. C. S. Formerly Surgeon to the Civil Hospital at Smyrna, and to the General Hospital in Camp before Sebastopol; Lecturer on Military Surgery in Anderson's University, Glasgow, etc. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 403.
2. *Commentaries on the Surgery of the War in Portugal, Spain, France, and the Netherlands, from the battle of Roliça, in 1808, to that of Waterloo, in 1815; with additions relating to those in the Crimea in 1854–1855, showing the improvements made during and since that period in the great Art and Science of Surgery on all the subjects to which they relate.* Revised to October, 1855. By G. J. GUTHRIE, F. R. S. 6th Edition. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 614.
3. *A Treatise on Gunshot Wounds.* By T. LONGMORE, Esq. Deputy Inspector-General of Hospitals; Professor of Military Surgery at Fort Pitt, Chatham. Philadelphia: J. B. Lippincott & Co., 1862. 12mo. pp. 132.

IN a recent number of this Journal we reviewed the work of Dr. SCRIVE, Surgeon General of the French Army,¹ and on that occasion fully considered the principal *diseases* which scourged the armies engaged in the Crimea. We propose now to give some account of the *surgical* experience of this same campaign, and also to take a brief glance at the present state of the surgery of war.

At the time war was declared between Russia and the Allies, considerable changes had taken place in civil surgical practice, since the great European wars of the beginning of this century. The more important of these changes were the use of chloroform and ether as anæsthetic agents, and the more frequent recourse to excision of the joints and resection of injured portions of the long bones, in place of amputation of the limbs. Besides testing the applicability of these important recent discoveries and improvements to military practice, surgeons had to learn the effect of the modern conical bullets and rifled fire-arms upon the nature of gunshot wounds. Though the principles of surgery are always the same, their applicability must be greatly influenced by circumstances, and the practice must necessarily vary with the circumstances, and with the character of the injuries with which the surgeon is called upon to deal. Methods of treatment, universally acknowledged to be the best in civil life, may fail of being followed with like success in military practice. Guthrie in the preface of the volume before us says that the precepts it contains, which are the result of the experience acquired in the great campaigns in Europe from 1808 to 1815, altered, nay overturned, nearly all those which existed previously, on all points to which they relate. A remarkable example of

¹ Relation Médico-Chirurgicale de la Campagne d'Orient.

this is the establishment of the fact of the great advantage in military practice of primary amputation over secondary. Led by the reflection that "amputation is a violence superadded to the injury, and therefore heightens the danger," it was maintained by Hunter, that after severe gunshot wounds amputation should be delayed for weeks. Practical experience in the field has demonstrated that, though Hunter's principles based on extensive observation in civil life cannot be controverted, yet their practical application in military surgery must be greatly modified, and primary amputation is here universally preferred. Indeed, Longmore declares that though men of the highest mental attainments have discussed the subject of gunshot wounds, we are nevertheless indebted to practical experience in military campaigns for every improvement, some few of recent date excepted, that has occurred in their treatment (p. 12).

One or two errors or oversights, in works recently published in this country, may be pointed out to show the special character of military surgery, and of the duties of an army surgeon. In one of them, written by one of our most distinguished surgeons, in the primary dressing of a gunshot wound, it is recommended that a roller should be applied from the distal end of the limb to some distance beyond the seat of injury, with a view of *facilitating the union of the sides of the wound by adhesive action*. No one with much practical experience in the treatment of gunshot wounds could for a moment be so forgetful of their nature as to give such an advice. In another work, the author of which is likewise a surgeon of great distinction, it is recommended that the sinks in a camp should be placed over a running stream in the neighbourhood. This no surgeon in the field would ever do twice; and few, it is to be hoped, would do the first time.

Each one of the works before us is the production of a man of extensive experience in military surgery. The well known and justly celebrated commentaries of Guthrie on the Surgery of the Wars against France in the beginning of this century, have been for years one of the richest mines in surgical literature. They have furnished probably more material for writers on military surgery than any work that has ever appeared. In the present volume, as the title indicates, commentaries on the Crimean war are added, showing the improvements that have been more recently made in the art and science of surgery.

At the close of the Crimean war some papers giving an account of its surgical results were contributed by Macleod to the *Edinburgh Medical Journal*, and abstracts of them were afterwards published in the quarterly summaries of this *Journal*. These papers were upon gunshot wounds and their peculiarities, hemorrhage after gunshot wounds, amputation through the knee-joint, statistics of amputations, wounds of the bladder and of the abdomen, and chloroform. They were read with eagerness by the profession, and esteemed as the production of an industrious and accomplished surgeon. In the present volume the author has endeavoured to record all the important results of the surgical experience of the war. He describes, moreover, the physical conformation of the Crimean peninsula; the camp life of the soldier, and its effect upon health; and the hospitals, nursing and transport of the sick. The distinction between surgery as practised in civil life and in the army; the peculiarities physical and moral of soldiers, and the distinct character of the injuries to which they are liable, are more noticed and dwelt upon by Dr. Macleod than they would have been by one who had long been habituated to military life, and this gives to his work a peculiar value to one about to exchange civil for military practice. An

appendix to this volume contains, together with much more that is valuable, a *résumé* of the report of the British Government on the surgery of the war in the Crimea, occupying over thirty pages, and containing surgical statistics of the highest interest and importance.

The work before us by Longmore, is the reprint of an article on gunshot wounds, contributed to the *System of Surgery* by various authors now being edited by Holmes of which a review was given in the last number of this Journal.¹ It is the best treatise on all injuries received from missiles projected by the force of explosion, that we have met with. Its excellence consists in its clear and concise description of the peculiarities of this class of injuries, and its eminently judicious advice as to their treatment, and also in the fact that the author, probably from advantages possessed on account of his position, gives more information in regard to the results of the practice of military surgery in recent times, from campaigns in Africa, India, Schleswick-Holstein, and Italy, as well as in the Crimea, than any other who has written.

In the Crimean war, for the first time, an opportunity was had of observing, on a large scale, the character of wounds inflicted by the modern *armes-de-précision*. It is always described as being much more severe than that of gunshot wounds inflicted by the old fashioned weapons. Longmore tells us that the new rifle with its conical ball has led to changes not only in the severity, but almost in the nature of gunshot wounds. Macleod, confessing that he is unprepared to say whether the great destruction occasioned by these balls results from their wedge-like shape, immense force and velocity, or revolving motion, or from a combination of all these causes together, is convinced that their use has made important changes in the character of gunshot wounds, both in the severity of the primary action on the parts struck, and in the aggravated evils by which they are followed.

The extreme swiftness and tapering form of the conoidal balls causes them to go through any organic tissue, no matter how dense and resisting, without deviation; and every portion of the body through which one of them passes, is inevitably deprived of its vitality. The great power of resistance often exhibited by the yielding elastic tissue of the skin, by tendinous and other structures, of which such curious examples are related by military surgeons, is no longer of avail against projectiles from modern weapons. Serive relates that when soldiers were struck creeping on the ground, these balls went straight from one end of a limb to the other, through the bones, without changing their direction. An English surgeon also relates that he has known the same ball to go through the bodies of two men and lodge in the third.

Upon the soft parts, Macleod states that the conical ball, fired at short range, produces less laceration than the old ball; and that there is little difference in either the size or the discolouration of the wounds of exit and of entrance; but if the range be great, and the parts struck bony, with little covering of flesh, as in the case of the head or foot, then the tearing, especially at the place of exit, is greatly more marked. In speaking of the two wounds of exit and entrance, the same author adds that in many cases that of entrance is more regular and less discoloured than that of exit, but it

¹ Through neglect, which strikes us as very reprehensible, there is no acknowledgment of this fact in the volume. To one not aware of the original position of the treatise, the references in the text to other articles in the *System of Surgery* are of course incomprehensible.

was seldom clearly marked to his observation that the lips of the former were inverted, while those of the latter were everted (p. 101).

It is upon the bones that the effect of the wedge-like form of these balls is most evident. The round ball may be flattened against a bone, or turn round it, or only partly perforate it; but the conical ball is never seen to act in any of these ways. When it strikes a bone, it splits it into fragments, having mainly a direction parallel to the long axis of the limb, and forms fissures extending into the joints. Any kind of ball striking a bone about its middle will generally fracture and split the shaft, but by the conical ball, the bone is rent so extensively that narrow fragments, many inches in length, are detached, and lesser portions are thrown in all directions, crosswise at the seat of fracture, and driven into the medullary canal and the neighbouring soft parts. Macleod speaks of a case where the sequestra after being involved in new bone, were so prominent, so irregular, and so rough, as to look like the *bristles of a porcupine*. The same author says that he never knew a conical ball to mark a bone with any touch more gentle than what occasioned its utter destruction.

Longmore tells us that conical bullets are rarely met with flattened or so much altered in form by contact with the structures in the human body, as bullets not unfrequently were formerly under like circumstances, and the splitting of the conical ball with its immense force of propulsion, Macleod declares cannot occur. We have, however, been informed by Dr. William A. Hammond, that in fourteen cases of wounds from conical balls, received after the skirmish at Falling Waters, at the hospital at Hagerstown, under his care, the ball was split in every one; and that in one instance the ball was split into seven pieces, and in another into three. This difference in the effect we are unable to explain; but it may be owing to a difference in the material of which the ball is made, and thus easily to be understood.

The introduction of rifled weapons with conical balls has not only increased the severity of gunshot wounds, but it has also greatly increased the number of wounded in an engagement. This is a point of great importance, as telling us the amount of surgical attendance that may be required. Longmore says that Col. Milford, Chief Instructor at the British Government School of Musketry, has stated in a lecture that 80,000 rounds of ball cartridge were fired from the old musket in one day in Caffraria, and only 25 Caffres were known to be killed; and at the battle of Salamanca only one ball out of 3000 fired by the British took effect, while at Cawnpore one company of soldiers armed with the Enfield rifle brought down 69 out of a body of horsemen by whom they were attacked, at one discharge. At the battle of Solferino, where rifled weapons were so extensively used, some returns showed that in 24 hours, 11,500 French, 5,300 Sardinians, and 21,000 Austrians were laid *hors-de-combat*.

It is evident from what has already been said that the old rule in examining a gunshot wound to find out the amount of injury and to extract foreign bodies, of placing the patient in the position he occupied when struck by the missile, with special reference to the relative position occupied by the person who fired the ball, is more to be insisted upon than ever since the introduction of modern weapons. It is obvious that the less a ball deviates from its straight course, the greater must be the advantage of attending to this precept, and we find that Macleod says the great point to attend to is undoubtedly the fulfilment of this rule. Longmore also states that in almost every instance the examination will be facilitated by attention to this precept. In the French service, Scrive says that the importance of

this rule, which was laid down by Ambrose Paré, the first master of military surgery, was fully determined.

In making the prolonged searches which are sometimes necessary for the extraction of foreign bodies, Macleod tells us that chloroform was found very useful, in the Crimea, not only in preventing pain, but also in restraining muscular contractions, by which obstacles are thrown in the surgeon's way (p. 126).

It was formerly the custom, though of late years it has been generally abandoned, to scarify the edges of all gunshot wounds as a preventive measure. Of course no one would hesitate to enlarge the wound for the purpose of aiding in the search for a bleeding vessel, or in the extraction of a foreign body, but what is here meant is practising incisions to prevent subsequent strangulation of the tissues after the development of the inflammatory swelling.

From his experience in the Crimea, as was noticed in the review above referred to, Scrive declares that the benefits of this practice were there demonstrated in the French service by the favourable results that followed; and that its advantages in remedying strangulation, excess of inflammation, the stagnation of pus, and traumatic gangrene, were seen in numerous instances. Longmore speaks of this practice as a discarded one, and all that Macleod says on the subject is to style it "the exploded custom of scarifying the wound." Guthrie likewise teaches that the wound ought not to be dilated, because such operation may at a more distant period become necessary; and that bleeding arteries, broken bones, and the lodgment of extraneous substances are the only legitimate causes for dilating wounds in the first instance.

The difference between the opinions of the English and French on this point may be owing to the fact that the former are more impressed by the teachings of Hunter, who says that "no wound should be opened because it is a wound, but because there is something to be done which cannot be executed unless the wound is enlarged," while the French follow the experience of Larrey, who applied these *débridemens* to almost every wound.

It was the experience of the Crimean war, as of most wars, that the tourniquet is of little use as a resource against primary hemorrhage on the field of battle. It should not be used by a surgeon, for he must not trust to its pressure, but at once secure a bleeding artery by ligature; and in the hands of another, it is an untrustworthy and even a dangerous instrument.

We find that Longmore agrees with those who teach that uneducated attendants should be recommended, in preference to attempting to use a tourniquet, to place a finger in the wound and make compression where they find most effect produced upon the flow of blood.

It should, besides, be well understood that primary hemorrhage calling for surgical aid is of rare occurrence after a gunshot wound. Many men doubtless die suddenly of loss of blood, from the opening of one of the main arteries; but, as Longmore states, in those wounds to which the surgeon's care is called, the primary hemorrhage is small in quantity and of short duration—a sudden flow at the moment of injury, and nothing more.

In the treatment of secondary hemorrhage, from the results of the cases that fell under his observation in the Crimea, Macleod gives his testimony to the soundness of the views of Nélaton, regarding the application of a ligature to an artery in an inflamed and suppurating wound¹ (p. 132).

As a general rule, surgeons are unwilling to trust to a ligature applied

¹ Nélaton's paper was read to the Academy of Medicine in 1850.

under such circumstances, persuaded that it will cut its way immediately through the coats of the vessel or fall prematurely. The external coat however resists, as usual, when the thread is tied, and the crural of the vessel is as surely obliterated as when its ligature is practised in a fresh wound; the only difference is that the ligature falls rather sooner. We have several times at antopsies tied with a fine thread the crural artery that had been bathed in pus for more than a week, in an unhealthy stump after amputation of the thigh, and never saw the external coat divided. It is very important to be fully persuaded of this condition of the arteries in suppurating wounds, for unless the surgeon be willing to practice upon them, in obstinate cases of consecutive hemorrhage in wounds of the extremities, he has only two resources left, to ligate the principal vessel between the wound and the heart, or to amputate the limb. Of the value of the former resource Guthrie says: "*Whenever the collateral circulation is sufficient to maintain the life of the limb, blood must pass into the artery before the wound, and must, as a general rule, pass up and out through the lower end of the divided artery, unless prevented by the application of a ligature, or by some accidental circumstance forming an exception to the rule but not the rule itself*" (p. 190).

In all cases, therefore, of hemorrhage in a gunshot wound, secondary as well as primary, the two ends of the divided artery must, if possible, be tied in the wound.

As regards the removal of balls known to be in the tissues, the experience of modern surgeons is decidedly against the doctrine of Hunter¹ that, when left, they cause but little harm. This celebrated surgeon goes so far as to maintain that even when they can be felt beneath skin that is sound, they should be let alone, on the ground that the extent of inflamed surface is proportionably increased by excision. M. Hutin, the surgeon in-chief to the Hôtel des Invalides, says that while 4000 cases had been examined by him in five years, only twelve men presented themselves who suffered no inconvenience from unextracted balls, and the wounds of two hundred continued to open and close continually, till the foreign body had been removed. As stated in the review of the work of Serive, above referred to, the immediate extraction of all foreign bodies was the general rule with the French surgeons in the Crimea, and the three authors, whose works are before us, likewise very decidedly favour the making of every reasonable effort for this purpose. Macleod even says that the position of a ball under a fascia, or in contact with a bone, should make us risk much in order to remove it. Experience has conclusively proved that the nervous and inflammatory symptoms of the early stages of a gunshot wound are heightened by the presence of a foreign body, and that it almost invariably keeps up long-continued and exhausting suppurations. The influence upon the mind of the patient must not be overlooked, for men are rendered miserable by a vague apprehension of danger, so long as the foreign body is known to be still unextracted.

"If we examine," says Macleod, "into the opinions of surgeons on this point, we find that nearly all those who look upon the extraction of the ball as a matter of secondary importance are civilians, while military surgeons place great weight upon its accomplishment." (p. 111.)

¹ It should be recollected that though Hunter filled some of the highest positions in the English service, he only served abroad about three years, and then his sole opportunity of seeing active service was as staff-surgeon in the expedition to Belleisle.

The ball should always, therefore, be immediately removed, unless its extraction requires very extensive incisions, risking the injury of important parts, or that would cause more serious mischief than its presence, and its after effects.

In times long gone by, a gunshot wound was universally regarded as one infected by a certain poison, and to destroy this, it was always immediately cauterized with a red-hot iron, or with boiling oil. This practice, at once cruel and injurious, was continued until Ambrose Paré found, by a happy chance—as is often the case in medical changes and improvements—that wounds did better when this was omitted. The manner in which he made this discovery is told with such charming simplicity, that the account will be read with interest:—

“Or, tous les susdits soldats du Chasteau (le château de Villare), voyans venir nos gens d'une très grande furie, firent tout devoir de se défendre, inèrent ou blessèrent un grand nombre de nos soldats, à coups de piques, d'arquebuses et de pierres, où les chirurgiens eurent beaucoup de besogne taillée. Or, j'étais en ce temps-là bien doux de sel; je n'avois encore vu traiter les playes faites par arquebusades, pour le premier appareil. Il est vray que j'avois lu en Jean de Vigo, livre premier des Plaies, en général, chapitre huitième, que les playes faites par bastons à feu participent de vénénosité, à cause de la poudre, et pour leur curation commande les cautériser avec l'huile de sambue toute bouillante, en laquelle soit meslé un peu de thériaque, et pour ne faillir paravent qu' user de ladite huile sachant que telle chose pourroit apporter au malade extrême douleur, je voulus sçavoir, premièrement que d'en appliquer, comme les autres chirurgiens faisoient pour le premier appareil, qui estoit d'appliquer ladite huile la plus bouillante qu'il estoit possible dedans les playes, avec tentes et sétons: tellement que je pris le hardiesse de faire comme eux. Enfin mon huile me manqua, et fus contraint d'appliquer en son lieu un digestif fait de jaune d'œuf, huile rosat, et terebenthine. La nuict, je ne peus bien dormir à mon aise, craignant, par faute d'avoir canterisé, de trouver les blessez, où j'avois failli à mettre de ladicte huile morts empoisonnés, qui me fit lever de grand matin pour les visiter, où, outre mon espérance, trouvay ceux auxquels j'avois mis le médicament digestif sentir peu de douleur, et leurs playes sans inflammation ni tumeur, ayant assez bien reposé la nuict; les autres où l'on avoit appliqué ladicte huile bouillante, les trouvay fébricitans, avec grande douleur et tumeur aux environs de leurs playes. Adonc je me délibéray de ne jamais plus brusler les pauvres blessez d'arquebusades.”

At the present day it is well known that there is no mysterious poison in a gunshot wound, but that it is simply a wound contused to the greatest degree, and that the proper treatment is that usually adopted in cases when healing is to take place by the slow process of granulation and cicatrization. Of course no attempt is ever to be made to bring about union by the first intention. In all the three works before us cold water is recommended as the best application to be first made, in the local treatment of a gunshot wound; and in wounds of the forearm and hand, Macleod says irrigation is of the greatest service (p. 119). The cold water should be continued, according to Guthrie, as long as cold is grateful to the sufferer; when it ceases to be so, it should be exchanged for warm. In all the applications made to a gunshot wound, Longmore states that “pressure, weight, and warmth,” must be avoided as much as is possible, consistent with the end in view. A roller, as a surgical application, Guthrie says, “is useless, if not injurious,” and directs that nothing more than a few inches of linen bandage is to be used, applied over the wet lint, to prevent it from changing its position during sleep. After suppuration is fully established, the surgeon must be guided, in the local treatment, by the general rules applicable to all wounds

healing by granulation. It is to be remarked, however, that though poultices very often may be used most advantageously in civil practice, experience has proved that they should seldom be permitted in a military hospital. Guthrie says of them that they are generally cloaks for negligence, and "sure precursors of amputation in all serious injuries of the bones and joints." (p. 29.)

The experience of the British surgeons in the Crimea in regard to the immense benefits to be derived from the use of chloroform in military surgery is fully confirmatory of the statements made by the French surgeon Dr. Serive, of which due mention was made in the review of his work before referred to. Macleod says that during the whole war he never had reason for one moment to doubt the unfailing good and universal applicability of chloroform in gunshot injuries *if properly administered*. He adds, moreover, that he conscientiously believes that its use in the British army directly saved very many lives, that many operations necessary for this end were performed by its assistance which could not otherwise have been attempted; that these operations were more successfully, because more carefully, executed; that life was often saved by the avoidance of pain, the *morale* of the wounded better sustained and the courage and comfort of the surgeon increased. Longmore says it was constantly used in the division to which he belonged throughout the war and no harm was ever met with from its use, while certain advantages appeared especially to fit it for military surgical practice; so far from adding to the shock of such cases as an army surgeon would select for operation, the use of chloroform seemed to support the patient during the ordeal (p. 127). The last named author cites also M. Armand as writing that during the late war in Italy chloroform was as extensively used and was as harmless as in the Crimea, and that he never heard of an accident from its use. In Guthrie's work will be found (pp. 55-58) some very valuable observations in regard to the use of chloroform, contributed at his request by Dr. Snow.

The experience of the Crimean war in regard to the time for performing amputations is the same as that always recorded by military surgeons. Serive states that in the French service the proportion of the success of the primary amputations surpassed, sometimes one-half, sometimes two-thirds, the favourable results of consecutive amputations. Macleod also says that the experience in the Crimea was, as it has always been, unequivocal in favour of early amputations and goes so far as to declare that in place of merely advocating interference within twenty-four hours, "the prevailing idea at present would be better expressed by saying, that every hour the operation is delayed diminishes the chances of a favourable issue" (p. 319). As to the presence of shock, Macleod states that it is the opinion of many army surgeons of large experience that unless very decidedly marked it is no hindrance to operation if chloroform be given to remove the depressing and at times destructive effect of pain. Long before the discovery of chloroform, Larrey wrote that it was demonstrated that shock, far from being a contra-indication to primitive amputation on the field of battle, should determine the surgeon to practice it, and that the effects of shock, far from being aggravated, diminished and disappeared insensibly after the operation. The same great surgeon tells us that he has seen a considerable number of soldiers perish because the operation had been performed too late, although operated upon within twenty-four hours, and relates that of three whose both legs he removed after the battle of Wagram, the one who was operated upon the first, and only a few moments after the shot, was the only one who was saved.

There is a second point connected with the question of amputation, where, notwithstanding all the late improvements in medicine, the experience of recent wars is the same as that of all previous ones, namely, that in all doubtful cases no attempt should be made to preserve the limb. Cruel as the precept sounds to one who has practised only in civil life, it is so universally maintained by all who have had military experience that it must be regarded as unquestionably correct. The surgeons in the Crimea teach this as urgently as Hennen did half a century ago after passing through the great campaigns against Napoleon.—“*The sum of human misery will be most materially lessened by permitting no ambiguous cases to be subjected to the trial of preserving the limb.*” One great cause of the mortality attending compound fractures of the limbs in the British army in the Crimea according to Macleod, was undoubtedly the great striving after conservatism which influenced all the surgeons of the British army. In the French army the result of experience was the same, and we find Scriver stating, as quoted in the review already referred to, that if the surgeon hesitates in cases that appear doubtful, or if he places himself a little too much on the ground of what is called conservative surgery, he will not be long in repenting of it, and will often see wounded men die in consequence of wounds whose lives might have been saved had amputation been employed.

For several years past, one of the most interesting questions in surgery has been, how far in compound injuries to the extremities excision of the joints and resection of portions of the long bones may be substituted for amputation, as exposing life to less danger, or securing a more useful limb. The experience of recent wars on these points does not appear to us to be more encouraging than that of former ones, at least as recorded by Larrey and other French surgeons, and also by Guthrie among the English. Hennen condemns these operations; even excision of the shoulder, he says, is “more imposing in the closet than applicable in the field.”

In the upper extremity, the results of excision of the shoulder and elbow joints have been, as heretofore, exceedingly satisfactory. During the time the surgical statistics were accurately kept in the British army in the Crimea primary excision of the head of the humerus was performed 8 times with 1 death, secondary excision 5 times with no death. Of the elbow joint, primary excision was performed 13 times with 3 deaths, secondary 4 times all dying from causes not connected with the operation; and the same joint was partially resected 3 times, in all successfully. In the Schleswig-Holstein campaigns—when great attention was paid to resection of the joints, and the results of which have been published by Esmarch in a very valuable essay—of 19 patients in whom the shoulder-joint was resected, in 12 a useful arm was preserved and 7 died. In not a single instance did complete ankylosis occur, and in several the power of motion became so great as to enable men to perform heavy work. Of 40 patients for whom resection of the elbow-joint was performed, 6 died and 32 recovered with a more or less useful arm; 1 remained unhealed when Esmarch wrote his essay (1851), and in one mortification ensued and amputation was performed. Scriver does not give the particulars of the French experience in the Crimea on this subject but says that resections, though tried a very great number of times did not succeed, with the exceptions of a certain number of those practised upon the upper extremity and principally the resection of the head of the humerus, which seems to enjoy great privileges in this respect and to furnish frequent examples of success.

Resections of portions of the bones also appear to be very successful in

the greater extremity) in two cases related by Macleod, as much as three inches were successfully removed from the humerus.

In the lower extremity, owing to a smaller supply of blood, a less free anastomosis between the vessels, the greater drain there is upon the system during the period of suppuration, and the constrained and irksome position the patient must retain during the treatment, the results of these operations are far less satisfactory. The knee joint was excised once in the Crimea, and the patient died, and the same results followed in the only other instance in which this was done for gunshot injury in the Schleswig-Holstein campaigns. When the knee joint is implicated in a gunshot wound, Macleod says he never heard of any one recovering without amputation; and he took so much interest in these cases as to visit every one he could hear of. Guthrie, also, never saw a case recover in which the limb was not removed. At the hip joint, according to the experience of the Crimean war, excision has certain advantages over amputation. Out of twenty-three cases of amputation performed in the French and British armies, not one recovered, and nearly all died, miserably, very soon after the operation. Out of six cases of excision, one recovered entirely, one survived a month, and all lived in comparative comfort for a considerable time.

In the Crimea, whenever resection of portions of the femur was practised, every case, without exception, proved fatal. In the bones of the leg, when neither the ankle nor the knee-joints were implicated, the results were more favourable. When both the tibia and fibula were injured nearly 19 per cent. recovered, when the tibia alone, 36.3 per cent., and when the fibula alone, 40.9 per cent.

In the recent campaign in Italy, Longmore states that in the lower extremity the practice of conservative surgery was almost entirely abandoned.

Medical men should at once avail themselves of the opportunity afforded them at the present time, by the republication of these works in this country, of making themselves conversant with the surgery of war.

From the little that has been said in this review, it is apparent that military surgery has its peculiarities, and that it can only be taught by one who has had experience in the field. The necessities of the case have thrown into the service, both of the army and of the navy, in this country, numbers of men who never before have turned their attention to these peculiarities, and who could obtain but little of the information they might desire, except from old editions of Guthrie and of Hennen. As to the little books that were hurriedly issued in this country, at the beginning of our troubles, to supply the want that was then felt, surgeons who have seen military service do not consider them as fulfilling their object.

Some sad things have happened, when medical men have been suddenly called to fulfil the duties of a surgeon in the army without due preparation. We have read of several instances that may well be related in connection with what has just been said. In one, a great amount of mortality prevailing in a corps of the British army in India, the principal inspecting surgeon went to see, personally, the cause. Arriving at the station, he proceeded at once to the headquarters of the surgeon, whom he found dead in his chair, with the Inspector's letter open before him. Unequal to the duties of his office, he ended his sorrows with a dose of morphia, to avoid the shame of exposure. In another case, in an encounter with the enemy, an artillery-man was so severely injured as to require immediate amputation of the limb. The surgeon entered his tent, ostensibly to procure his instruments; but, as he was rather long absent, an inquiry was instituted to know what had

become of him. He was found lifeless. He had committed suicide to avoid the performance of an operation with which he was practically entirely unacquainted. We are not aware that the mortality in our army has been increased, in a similar way, by the medical men who have been suddenly attached to it; but what has happened once, may occur again. Perhaps the little books, already referred to, and which have the advantage, so much insisted upon by some persons, of being portable in the pocket, and ready for immediate reference, have, in this respect, indeed, been of some advantage.

We cannot take leave of the books before us without feeling increased pride in belonging to a profession to which humanity owes so much, and which has contributed to successfully diminish the dreadful sufferings of war. In the Crimea were found worthy successors, in both the allied armies, even of such men as Larrey, Percy, and Paré, of Hennen, Guthrie, and Hunter. When we reflect that an endeavour has been made in our Congress to place on a footing with the followers of men such as these, the ignorant and unscrupulous followers of a German charlatan, we have no words to express our indignation. Should such an attempt ever prove successful, no surgeon, who has a due appreciation of his own position, and a proper respect for the great and good men who have gone before him, can remain one moment longer in the service. The impudent fanatics who would now instruct our generals in the art of war, interpret our laws and constitution to the highest legal authorities, teach religion and morals to our most learned divines, and the art and science of medicine to our profession, will be responsible for the consequences.

W. F. A.

ART. XII. *Traité d'Hygiène Navale ou de l'Influence des Conditions Physiques et Morales dans lesquelles l'Homme de mer est appelé à vivre et des moyens de conserver sa santé.* Par le Docteur J. B. FONSSAGRIVES, Professor à l'école de Médecine navale de Brest. Illustré de 57 planches intercalées dans le texte. 8vo. pp. 770. Paris, chez J. B. Baillière, 1856.

Treatise on Naval Hygiene or on the Influence of the Physical and Moral Conditions to which the Seaman is exposed, and of the Means of preserving his Health. By Doctor J. B. FONSSAGRIVES, Professor in the School of Naval Medicine at Brest. Illustrated by 57 plates, &c.

THE preservation of the health of those persons whose necessities or unfortunate tastes compel them to pass a large part of their lives afloat, is a subject of interest to physicians and statesmen as well as to those who derive their livelihoods and fortunes from maritime pursuits. The circumstances under the influence of which men live in ships, in connection with the diseases from which they most generally suffer and die are worth consideration by medical philosophers, sanitarians, and philanthropists. The seaman of the present day pursues his vocation in less peril than the seaman of a hundred years ago, and his chances of longer life are greater. But he is still exposed unnecessarily to causes of disease, discomfort, and unhappiness, either through the ignorance, or the heedlessness of those who possess the power to remove very many of the obstacles to his well-being. In the commercial marine everywhere, the corporeal interests of the sailor are often sacrificed to the cupidity of ship-owners, and in the naval services of almost all nations to ignorant conceit or love of mere motive-

less display and glitter, sometimes found in the cabin or on the quarter deck. We occasionally find men in authority on board ships who fancy themselves endowed with universal knowledge, although entirely ignorant in many departments, who are unwilling, seemingly, to confide in the knowledge of the medical officers associated with them, and for some such reason, treat their hygienic recommendations with indifference, while they unhesitatingly rely upon them to treat disease or wounds. These same men, however, sometimes yield on this subject as a personal favour to the physician what they would utterly deny to his professional authority. There are very many also who respect medical authority and cheerfully adopt suggestions from a surgeon for the preservation of the health of a ship's company.

⁴ No benevolent man can contemplate nautical life, in view of its physical and moral privations, and its exposures to the chances of disease and death, both in peace and in war, without feeling that gratitude is due to every one who attempts to lessen the evils which surround it, even in this nineteenth century, when the sailor's condition is vastly improved. Camoëns, who died in 1579, seems to have commiserated sailors in his day.

Curst be the man who first forsook the ground,
And fasten'd canvas to a sapless tree!
Worthy of anguish in the pit profound,
If that true faith I hold religion be.
May never judgment lofty and fecund
Nor vivid genius grace his memory,
Nor sonorous harp his bad exploit proclaim
But black oblivion shroud himself and name.¹—*Canto IV. St. CII.*

Surgeons in our own ships of war have no authority to enforce measures for the hygienic condition of the vessels on board of which they serve, beyond submitting their suggestions or recommendations. It always rests with the officer in command to adopt or reject them without incurring any legal responsibility. But it might be embarrassing to the service, perhaps, to place any power over the subject in the hands of medical officers, unless such power were limited by a right of *veto* in the commanding officer; but that *veto* might be associated with an obligation to record reasons for refusing to act on the surgeon's deliberate recommendations, to be submitted to the government.

In practice, the duties of a surgeon on board ship are limited to treating the sick and hurt, and keeping a record of his prescriptions. Beyond this he can do nothing without the sanction of the captain. He dare not use a light even, either while caring for his patients or in his own quarters after a stated hour at night, without previously obtaining permission, no matter what may be his nominal rank or experience in the navy. To assert that such permission is never denied, even if it were true, which it is not, is not a satisfactory reason for withholding this much power or privilege; nor is it a conclusive reason to urge that this restriction is a necessary precaution against fire, because every half-hour through the night all lights are visited, except those in the apartment of the captain, and their condition reported to the officer of the watch. Nor can it be easily understood, how a light burning by permission of the captain or officer of the watch on deck, is less dangerous than it would be while burning on the exclusive responsibility of the surgeon.

A ship, like a city, is inhabited by a population composed of people

¹ The *Lusiad* of Luis de Camoëns, translated by Edward Quillinan, London, 1853.

differing in age, professions, degree of mental culture and morbid aptitudes. Like a city, a ship has its mode of structure, its atmosphere, its salubrity, and peculiar alimentation; the necessities of air, water, and light of its population are the same, though satisfied under dissimilar conditions; an analogous system of preserving health, of cleaning and of draining is essential to them; both are at times liable to epidemics which defy the strictest observance of the laws of hygiene.

Dr. Fonssagrives divides his work into six books, each devoted to the consideration of a branch of the subject. It is proposed to present a summary of them to indicate the scope and nature of his researches.

A ship is a habitation composed of vegetable materials almost exclusively; ships of which the hull is of iron contain considerable quantities of wood, employed in constructing the decks, partitions, &c. It is calculated that a first rate ship of the line contains in its structure about 6000 cubic metres of wood. The injurious influence which such a vegetable mass may exercise when some portions of it, which always happens, are subjected to conditions of humidity and temperature favourable to the decomposition of wood may easily be conjectured.

Old ships, whose worm-eaten ribs fall to mould at the slightest touch, in which destructive animals have excavated numberless galleries reducing their wood to a spongy state and thus multiplying surfaces for contact with water are most unfavourable to salubrity; besides, age separates the seams of ships and permits water, under the influence of considerable external pressure to filter through them as through a sieve, and maintains them in a state of constant humidity which is highly favourable to vegetable decomposition. And what chemical forces might not do, the destructive action of certain mollusks, *tubicolæ*, *teredines*, *pholades*, &c., and vegetable parasites which determine dry-rot, complete, and their organic remains joined to those of the wood, add another element to the fetid exhalations issuing from the lower parts of ships.

The essential elements of wood are *lignin*, *cellulose*, nitrogenous matters and salts.

Cellulose constitutes the frame of the cells and vessels, upon the internal surface of which the lignin is deposited; the azotized or nitrogenous matters and the salts form the principal solids of the sap, which are deposited by evaporation of its water. Certain essences are found amidst these fundamental elements; the pine, the cedar, the guaiac, &c., have their lignin or matter incrusting their cells mingled with resinous substances, which contribute to their preservation; oak contains tannin and gallic acid, other woods contain colouring matters used as dyes or odorous principles, &c.

The elementary composition of wood varies, age, soil, exposure, alike modify it, and as much may be said of different parts of the tree.

The older the wood the thicker the incrusting layers of its canals become, and, as a consequence, the sap containing the nitrogenous elements which, at a later period in vegetable decomposition, play the part of ferments, is excluded. Hence it may be inferred that the advanced age of the ligneous layers becomes at once a condition of durability and salubrity, and hygiene benefits by the architectural rule, which, in the construction of ships, requires the wood of trunks of a certain age to the general exclusion of branches. Inasmuch as the sap-wood decays more rapidly than the true wood, and the liber and cortical layers more rapidly than the sap-wood, the duration and salubrity of the vessel demand that all sap-wood should be carefully excluded from its structure. And it should not be forgotten

that wood covered with its bark in the low and humid parts of a ship becomes a true cause of insalubrity.

The season when trees are believed to contain least sap is selected for cutting timber designed for architectural purposes with a view to durability, because experience has proved that the presence of sap in wood accelerates its decay. Means are resorted to besides to season, that is, to dry wood as completely as possible before employing it, but no plan has been entirely successful. Drying by heat was found to render wood liable to crack, to diminish its tenacity, and to increase its hygrometric quality.

Various processes have been adopted and then abandoned to preserve ship timber from decay, but the problem yet remains to be solved. Oxidation and fermentation simultaneously in action are the movements which are destructive to wood. Contact with air favours oxidation, and contact with water helps fermentation. Contact with air cannot be avoided; but if humidity, without which the natural ferments contained in it would be inactive, could be removed, wood might be indefinitely preserved in ships. The comparatively superior durability of wood used in the structure of houses and of furniture is due to the absence of humidity in a greater degree than in nautical structures. And for the same reason, other circumstances being equal, habitations on shore are more salubrious than those afloat. The art of preserving the timber of ships and the art of preserving the health of those who inhabit them seek for means to lessen and destroy humidity, which is the great source of destruction of both wood and salubrity.

The capillary structure of wood renders it absorbent of moisture. To obviate its dilatation through the absorption of liquid from the atmosphere and contraction again when deprived of it through exposure to artificially warmed air, it is covered with paint, which, filling the pores of the wood, hinders though it may not entirely destroy their absorbing property.

Experience taught that vessels built in the open air in wet seasons were much less durable than those constructed in dry weather, because the timber became almost saturated with water which no process tried was effectual in subsequently removing. For such reason the practice of building ships in great ship-houses in which they are sheltered from rain and exposed to the drying effects of free ventilation until launched was instituted and ever since continued. Fortunately for humanity, the efforts made to prolong the durability of ships by having the timber felled in the period of its growth most favourable to its duration, to have it free from sap-wood and bark, and as dry as possible when put into the vessel contributed equally to their salubrity.

It is asserted that the durability of two ships built of the same wood will be in inverse proportion to the time they remain on the stocks, and for this reason, as well as for the sake of economy and the health of those who are to live in them, ships should be constructed very slowly. While building, it is recommended that some strakes of planking should be left off till the last moment, and that as many as possible of the holes bored for the bolts and tree-nails should be left open, and the seams should be left uncaulked till within a few days before launching that the circulation of air may exert its drying influence as long as possible.

Spaces left between the ribs become resting places or reservoirs of confined air and moisture which promote the putrid fermentation of wood, and for this reason those vessels which have solid frames without interstices between the ribs or timbers are most durable and most salubrious.

In spite, however, of all precautions, even the healthiest ships are sites of incessant vegetable decomposition, which is promoted by the heat of the confined atmosphere and contact with water loaded with putrescible matters. Under these influences the wood changes, turns dark coloured, loses its cohesion, and passes to the condition of wood termed *carbonous*, a kind of detritus insoluble in the alkalies, which a degree's further advance in chemical disaggregation will transform into mould or humic acid, which will saturate a solution of potassa. This mould is formed of carbon, hydrogen, and oxygen. M. Malaguti thinks that the nitrogen which analysis discovers is simply interposed between the molecules, and proceeds from carbonate of ammonia absorbed. The passage of wood to the condition of humus does not occur without giving rise to a variety of gases, the phosphorus and sulphur which enter into the composition of the protœic matters of wood intervene in the production of these gases, and there is formed phosphuretted hydrogen which causes the phosphorescence of rotten wood, and sulphuretted hydrogen which imparts to the products of vegetable putrefaction such a repulsive odour. The organic matters contained in sea-water in which the sides of the ship are soaked and those proceeding from animal and vegetable parasites developed in them, also furnish their contingent to the mephitic exhalations which are disengaged from the holds of certain ships. The transformation of wood into mould is never effected except in a partial degree on board ships; it is found complete, however, at certain isolated points in ribs or beams, but most commonly the disorganization of wood is arrested in that condition termed dry-rot.

Cryptogams are parasitic productions developed in preference on organic matters in process of decomposition, because there only they find in abundance the nitrogen necessary to their chemical constitution; hence, from the moment a standing tree dies, or rots after being felled, it becomes covered by cryptogamic vegetations. The wood of ships becomes a prey to them as soon as prolonged humidity sets up the work of internal fermentation; and their sporules extending from point to point by aid of the waters of the hold, kept moving by the motions of the ship, secure the diffusion of those parasites. These cryptogams absorb the juices of the wood, which becomes friable and its aspect justifies the term dry-rot, applied to this condition. The rapidity with which dry-rot destroys wood is shown by the fact that in the Queen Charlotte, a British ship of the line, it committed such ravages in less than two years, that it was necessary to reconstruct her almost entirely. Such was the humidity of this vessel, that a hygrometer (1000° of the scale of which indicated saturation), marked 826.6° in the hold near the pump, and 464.2° only in the external air.

Humidity is the most powerful cause of the destruction of the material of ships, and also of determining the insalubrity of those materials, and it is no exaggeration to assert that the small quantity of water which daily leaks through the sides of a ship, from the sea is no less perilous to the lives of sailors than the tempests against which they are liable to contend. Hence the practice, which has happily fallen into disuse to a great extent in the past few years, of pumping water into the holds is as injurious to the salubrity as it is to the durability of ships.

The metallic materials employed in the construction of ships exert only an indirect influence on naval hygiene. Next to wood in the scale of importance iron stands first. It is used in securing the joints, for ballast, in steam engines, &c. The incessant oxidation of masses of iron must liberate enormous quantities of electricity, to say nothing of that produced by friction of the different parts of engines.

Copper is chiefly employed upon the external surface of the hull. The English frigate *Alarm* of 32 guns was the first vessel, in 1761, that had the bottom covered with copper. The brass ornamentation on the decks of ships is injurious to the eyes, from the influence of strongly reflected light.

The textile materials of sails and cordage are scarcely less liable to fermentation than wood. Sails when perfectly dry exert no influence on nautical hygiene; but stowed damp in the sail-rooms below, subject to the elevated temperature of the interior of the vessel, a sort of slow combustion occurs in the cellulose of the vegetable tissue, and they exhale a disgusting odour, and become covered with mould.

The general substitution of chain for hemp cables, has been an advantage to the salubrity of ships. They were in use amongst the ancient Gauls. In his commentaries, Cæsar says, *anchora, pro funibus, ferreis calenis revincta*. Hemp cables, after soaking in water, and covered with mud of the anchoring ground, were stowed away in the hold of the ship when she put to sea, to dry as well as they might, or become a focus of fermentation and putrefaction to a greater or less extent.

Tar, which is largely employed in ships for the preservation of hempen cordage from moisture, and in calking and sealing joints, seems to exert no definite influence upon nautical hygiene, at least no one attributes disease to the respiration of an atmosphere loaded with the odour of tar.

The kind of paints used is of some importance. In ships of war black and white are the prevailing colours. It is objected that black paint causes wood exposed to the sun's rays to heat to a greater degree than red or white; and that under equal circumstances, a vessel painted white outside would be cooler internally than the same ship would be if painted black, and that this would be more especially notable in iron vessels and steamers. But fashion has determined that the exterior of cruisers must be black; and no argument will soon induce a change in this respect. White is adapted to the interior parts of ships, especially below the deck, because it reflects the light, while a darker hue would absorb it. But it may be well questioned whether some sober tints of cream or slate might not be less irritating to the eyes than glaring white above the deck.

Where paint is used, white-zinc is preferable to white-lead, but neither is as wholesome as white-wash or covering the interior surfaces below the spar deck with milk of lime. Our author suggests that an addition of a small quantity of chloride of lime or hypochlorite of soda to white-wash used in ships might contribute to their salubrity.

When the interior parts of a ship are to be painted, while the crew is on board, a warm dry day should be chosen for the purpose, and men enough should engage in the work to complete it, that the vapour of turpentine may not be long maintained in the atmosphere, because observation has led to a belief that it is very prejudicial to the health of many persons, and some authorities believe that painters working lead paints suffer as much from the influence of the turpentine as from the metallic carbonate.

Under the denomination of ship's stores, besides sails and cordage, are ballast, fixed and movable, the former consisting of iron and the latter of stones which may be thrown away when cargo is substituted; coals as well as fatty materials and oil, which are largely used for lubricating machinery in steamers, all of which are more or less liable to spontaneous combustion. The various questions of hygiene of steamers in this connection are yet to be investigated and decided.

Dr. Foussagrives suggests that a comparatively low degree of tempera-

ture may cause coals stowed in a ship's bunkers to give off slowly the same products which are obtained by distilling tar in the manufacture of illuminating gas, namely, carbonic acid, nitrogen, oxygen, bicarburetted hydrogen, which gases become impregnated with ammoniacal, sulphurous and tarry vapours, that are eliminated by proper treatment in the gas manufactories; but slowly eliminated and diffused in the atmosphere of the ship, they may be very detrimental to the health of those forced to respire it.

The local hygiene of different parts of a ship is minutely considered. In all ships the space beneath the lowest deck, where there are several, is called the "hold." It is in ships of war the grand reservoir for the reception and storage of water, provisions and stores of almost all kinds. In relative situation and uses it is analogous to the cellars and vaults of dwelling houses.

The hold being the lowest part of the ship is the receptacle of all water which may leak through the bottom. It is divided longitudinally by the keelson, along each side of which, arrangement is made for the flow of water from both extremes to the pump-well which is the lowest level within the vessel. The spaces between the timbers near the keelson are called the limbers, which are prone to become incumbered with detritus and dirt from various sources. These are generally organic matters, which soon ferment and give rise to gaseous emanations which more or less contaminate the atmosphere. In times past, a rope or chain was extended along through holes in the limbers properly arranged for the purpose, keeping the passage between the limbers free, by drawing them alternately fore and aft. But in modern times limber-ropes have disappeared almost entirely. The limbers are kept closely covered, and are inaccessible without removing the iron ballast, and fresh water-tanks which are made to form a tight covering for the lining of the hold.

At the bow and stern are placed powder magazines, accessible from the orlop or berth-deck. Spaces are left on each side of the magazines, termed wings, and also beneath them, which are occupied by store-rooms. Near the centre are placed the chain-lockers, shot-lockers, and shell-rooms, and toward the stern are the spirit-room and bread-rooms. Salted beef, pork, rice, sugar, &c. &c. in barrels are packed on top of the tanks with fire-wood, from which the bark has been removed prior to taking it on board.

In steamers a large part of the centre of the hold is occupied by the engines and coal bunkers, which renders the arrangement of the hold in them necessarily different from that of sailing ships. But whatever this may be, four conditions are necessary to the salubrity of the hold.

1. The storage should be so methodically combined that everything may be at hand, and require as little moving and changing as possible.
2. Hatches and windsails should be so arranged as to favour free and active ventilation.
3. Water should not be permitted to stagnate or accumulate in any part, and its removal should be made easy.
4. Provisions and stores should be packed in a manner most favourable to their preservation.

Cocks or spigots, communicating through the bottom of the ship with the sea, are placed in all public ships, through which water may be admitted for the purpose of washing and cleansing the hold, by floating every kind of detritus into the pump-well from which it may be removed.

However efficient such a contrivance may be in washing the interior of the

hold, it should be sparingly used, because the difficulty of drying the hold again after being thoroughly wet is so great that moisture lingers many days sometimes, and contributes to the process of fermentation of organic matters subject to its influence. As long as dirt is perfectly dry it is comparatively harmless, and becomes offensive only after it has been moistened. When these bilge-cocks are opened to admit sea-water, the pumps should be at the same time set in motion to remove it from the pump-well where it very speedily accumulates.

In French ships of war there is in the forward part of the hold an apartment called the "cambuse," into which are placed the rations for the day and from which they are issued to the cooks, and to which plates and cans are returned after meals to be cleansed.

The orlop-deck in ships of the line and berth-deck in frigates, sloops, and smaller vessels, is the basement story of the maritime habitation.

All hygienists agree, says Dr. Fonssagrives, that the basement of our houses are much less salubrious than the upper stories, on account of its vicinity to the ground and the less purity of the inferior strata of the atmosphere. The berth-deck of ships presents analogously, like unfavourable conditions. From their capillary porosity, its partly submerged walls derive an inevitable humidity which is augmented by water too frequently used in washing the deck, by rain, &c.; its position immediately above the hold exposes it to emanations disengaged from the latter; and the air as well as light reach it only from above downward, amidst a thousand intervening obstacles, so as to render the renewal of the interior atmosphere very difficult. The insalubrity of the berth-deck increases with the rate or size of the ship.

In ships of a single battery the after part of the berth-deck is occupied by the cabin, the ward-room in which the commissioned officers lodge and mess, the steerage for the accommodation of midshipmen, and the apartments of warrant officers, namely, boatswain, gunner, carpenter, and sail-maker. The part of this deck not assigned to the officiality of the ship is occupied by the crew. And the extreme forward part is appropriated to the hospital or sick-bay in public ships of the United States, but in the French navy a more eligible position, near the centre of the deck, or in frigates on the forward part of the gun-deck, where there is better ventilation and light, is assigned to the hospital. A half century ago, sick men seem to have been regarded in the French as well as in other navies, as useless beings, who are to be put as far out of the way as possible.

In 1810, M. Sper de Granville, a French naval surgeon, published a thesis entitled *Essai sur le Service de Santé Nautique*, in which he described the inconveniences of the forward part of the berth-deck for hospital purposes, and pointed out the superior advantages of the forward part of the gun-deck. It was objected to his views that taking that part of the ship for a hospital two guns would be thrown out of exercise; that the light left with the sick during the night would be dangerous; that smoke from the galley or kitchen, the odour of the "head," draughts of air, and humidity from sea-spray would be dangerous to the sick, and the aspect or uniform appearance of the battery would be injured. To the latter objection M. Sper replied: "What! place in competition the mere appearance of the battery with the health and even existence of men! The officer who makes such an objection manifests at once the degree of interest he is capable of taking in the welfare of the crew." In 1822, this idea of M. Sper was

fully developed by M. Le Helloco, and in 1825 the point was gained and an ordinance was issued which put the question at rest.

The galley or cooking apparatus is placed on the forward part of the berth-deck in sloops, and on the gun-deck of frigates. On the berth-deck, the galley contributes to the ventilation, and this effect more than compensates for other inconveniences its presence there occasions.

In frigates, and larger ships, a great many men sleep on the gun-decks, where they have a better atmosphere than is usually found on the berth or orlop-decks.

The upper or spar-deck is the parade ground and scene of action of the floating population, and, being exposed to the free air and light, requires little consideration from the hygienist or sanitarian.

The second book of the work of Dr. Fonssagrives is devoted to the man of the sea, and embraces recruiting, habits, vocations, and marine labours.

To determine the physical force of a crew, a *dynamometer*, which consists of an elliptical spring, acted upon by pressure, to ascertain *manual force*, and by traction, to ascertain *renal force*, or strength of back, is suggested.

A table of the results of experiments by M. Quetelet is given, the deductions from which are: 1, that muscular force increases up to forty years; 2, that renal force diminishes at an earlier age than manual force; 3, that the renal force of a seaman of fifty is equal to that of a novice of sixteen; 4, that those of slightly advanced age, or of very advanced age, equal each other in the development of muscular force.

The tables of M. Quetelet show that renal force doubles from eleven to fifteen, becomes triple between fifteen and forty, and then decreases; that manual force follows a nearly analogous progression and decadence. It is therefore desirable that the crew of a ship should not be composed of men too young; without considering nautical inexperience which is their lot, is there not danger in subjecting men whose development is not yet complete, to the hardships and crowding which are incident to navigation?

Nautical conscripts of France are required to serve between the ages of eighteen and fifty, or, at the utmost, thirty-two years, or the entire term of the full vigour of muscular force, if the deductions of M. Quetelet are reliable.

The seaman is exposed to the most varied and most vehement passions; he often passes from the most insipid monotony to the most amusing variety, from joy to sadness, from satisfaction to discontent, from calm to agitation, from idleness to painful labour, from safety to peril, from hope to despair; abundance follows want, excesses succeed privations. These emotions, by their multiplicity and activity, exhaust sensibility, and hence we see the seaman insensible and passive, when any other man would become disturbed and excited.

Sea life too is frequently destructive of family ties; our fragile and precarious affections, like everything human, are prone to diminish, and need the constant presence of those who inspire them to keep them warm; similitude of tastes, the guarantee of solid conjugal intimacy, often gives place to incongruous habits, acquired during separation; the supreme control of the family—in all that relates to the education of children, and care of their patrimony—is no longer in legitimate hands; in a word, sea life is a most absolute overturning of the harmonious system of family management. Impressible and loving natures find in this chilling of their instincts, a source of sadness, inquietude, and discouragement, which is fostered even by letters—fragile bridges thrown over the sea between the ship and domestic

hearth—and this the hygienist will not fail to consider. To listen to the heedless language of sailors, the little reverence with which they speak of things the most sacred, the facility, in some degree fortuitous, with which even on the eve of departure they contract unions, the gravity of which they little comprehend, and to see their spirit of gaiety, one would suppose them to be careless, and strangers to the sorrows of absence and to family regrets; but the sagacious physician can distinguish the man under his borrowed envelop, and is not ignorant that nostalgia often selects those who would conceal it.

Drunkenness, the most ignominious of all the passions—because it enslaves body and soul, kills intelligence, extinguishes the will, and hastens decrepitude—is the sailor's curse, in which health, vigour, and the well-being of the family are foundered. And it is surely incongruous that governments should encourage this vice by contributing alcoholic stimulants as a part of the daily food of seamen, and thus create the appetite in the young, and foster it in the mature, while they enact laws to punish those who intoxicate themselves, as well as those who commit the offences which excess in drink originates. The writer believes that the abolition of the spirit ration of the navy would contribute more to the elevation and efficiency of the service than any other one act of legislation could do. The physical, moral, and intellectual diseases consequent upon the intemperate use of intoxicating drinks, are too well known to the profession to require here a quotation of the author's statements in connection with the subject.

The influence of drunkenness upon discipline is of daily observation, as shown in men exceeding their period of liberty on shore, quarrels, insubordination, &c., all effects of this vice, which has merely a temporary check in want of money, or confinement on board. Most offences being consequent upon drunkenness, there follow in its train punishments which are prejudicial to health, such as deprivation of liberty, of air, food, close confinement, &c.

Prolonged abstinence from indulgence in the genetic appetite disturbs the equilibrium of the functions; but it may be added that the inconveniences flowing from this cause are less than those which result from abuse of the sexual relations. This is especially true in warm countries, where the genital sense, stimulated beyond measure, acquires undue activity, and the economy already exhausted by overpowering heat, slowly repairs the double—humoral and nervous—expenditure which it imposes. M. Celle probably exaggerates when he declares that "sexual pleasures have certainly killed more men than drunkenness."

Syphilitic diseases are very prevalent among seamen. In the years 1852 and 1853, at Brest, out of a mean force of 1641 men, there were annually 443 venereal cases, or 26.9 per cent. In public ships of the United States, the number of cases, although considerable, bears a very much smaller proportion to the number of men.

There is another kind of genetic excess which profanes the laws of nature, and ignores the sexual duality of the species, to which our author calls attention—an excess which is extremely rare in the navy of the United States, though it is believed that among boys onanism is not unfrequent.

Many professions and labours are embraced in a ship. The officers constitute the aristocratic class of its population, a class which has its privileges of consideration and authority, and also its responsibilities, cares, and anxieties. Although Dr. Fossagrives properly refrains from individualizing the members of this class, he feels at liberty to speak of the surgeon, the man to whom the State confides the health of the floating colony—a

detached portion of the mother-country. His duty is hard. From the moment the ship weighs her anchor, he alone has the undivided responsibility of the lives of those whom the State confides to his care. In the midst of those anxieties—which an unexpected case may cause—he is deprived of recurrence to another to sustain him; his only resource is in books, the insufficiency of which is cruelly felt at critical moments. Hygiene, medicine, surgery, toxicology, legal medicine, are distinct specialities among practitioners on shore; the surgeon of a ship, under the penalty of being considered unequal to his task, in case of failure, is bound to provide for private and public prophylaxis, direct the treatment of internal diseases, be ready for great surgical operations, enlighten at need the most arduous cases of judicial medicine. He ought to be a *physician* in the broad acceptance which antiquity attached to this word; to meet the exceptional exigencies of his position, it is not enough that he shall have passed the frequent tests to which the naval surgeon is subjected, in passing through the different degrees of his hierarchy; indefatigable, constant labour alone can maintain the degree of knowledge he has painfully acquired, and his life is passed amidst the agitations of competition, the fatigues of the sea, and toil without relaxation, which conscience imposes on him as a duty. His task is difficult, under ordinary circumstances; deficiency of space, the instability of the ship, the penury—do what he may—of alimentary resources, obscurity, noise, humidity, are the opponents against which he is in constant contention. But when an epidemic appears, his difficulties increase, and are only met by increased courage and energy. That is his field of battle, where danger presents itself, without the excitement which shades, or the glory which compensates it. It belongs to others to say whether a surgeon of the navy ever recoiled through fear, and whether our corps cannot, after every such scourge, reckon with pride a duty well discharged even with the cruel losses it cost. Let us add, says Dr. Fonssagrives, that the surgeon finds compensation and a lightening of the difficulties of his ministration in the high esteem and personal consideration of which he is an object, and in the readiness with which commanders and officers second his efforts to stay the ravages of an epidemic.

The officers stand in the same relation to sailors afloat as those of the liberal professions in our cities to those who exercise mechanical trades or labour with their hands. Although they are better lodged and enjoy greater variety of food, they feel often severely the moral miseries which are inherent to navigation; separation for long periods from family and friends; incompatibility with those with whom they are closely associated in their duties; the rigid formalities of discipline; sense of responsibility, the devouring anxieties of ambition reduce the morbid aptitudes of the officer to that of the sailor and expose him to diseases, almost wholly unknown amongst the crew.

In a hygienic point of view, all the professions exercised on board ship are divided into three classes.

1. Professions exercised principally in the open air.
2. Professions exercised principally in the interior of the ship.
3. Professions exercised habitually under exposure to fires.

The professions which are exercised in the open air are those of seamen, ordinary seamen, boatmen, boys. These generally speaking are the most healthful of the vocations. In an epidemic yellow fever on board of the *Herminie* at Havana, the topmen furnished 25 per cent. of the patients,

while the mean of other grades was 28 per cent., and some among them, "holders" and supernumeraries, it attained 66 per cent.

Boatmen are more exposed to the causes of disease than topmen. Violent or long continued exercise in rowing often is succeeded by repose in the boat, which exposes them to be chilled in cool winds while freely perspiring; or they have to remain under the influence of a burning sun; or to wade knee-deep in water sometimes in landing on beaches. Boat-service is among the most fatiguing and insalubrious in which men are employed in the open air.

Of the second class, those who work in the hold suffer most in health. The holder is easily recognized on inspection at muster, by the pallor of his complexion, the œdematous puffiness of his cheeks, and that appearance of etiolation and general debility which a few months' sojourn in the hold are sufficient to bring. Proportionately the holders furnish nearly double the number of patients of any other vocation in the second class. This increased liability to disease is not due exclusively to the privation of pure air and light; the slow poisoning from respiring the sulphhydric miasms which are disengaged in the depths of the ship, must also be taken into account.

Our author suggests that "holders" should not be a permanent class, but should be relieved periodically and be required to sleep always in some well ventilated part of the ship; and that quinia in small quantities should be administered to them regularly as a prophylactic.

Cooks, bakers, firemen, and coal-heavers suffer in health on board ship more than men of any other class. The elevated temperature to which they are exposed augments their aptitude to disease. Acceleration of the circulation and respiration, and copious perspiration are among the immediate effects of the influence of heat, and men become anæmic and liable to affections of the heart, ophthalmias, diarrhœas, and acute diseases of the air-passages.

In the French navy there is no marine corps. It is possible that this institution may disappear from the navy of the United States, because sailors are fast becoming as expert as the marines in infantry tactics, and when they shall be, the marine corps may be advantageously transferred to the army.

Several pages are appropriated to a consideration of rest. Men on board of ships of war, besides working or manœuvring, cleaning, and provisioning the vessel, are employed in drill at the great guns and with small arms; and in some instances, health is lost sight of in the anxiety of the commander to astonish beholders by the rapidity and precision of the various drills of the crew. In the exercises of reefing, furling, sending down spars from aloft men are sometimes killed or maimed in their efforts to accomplish the work within a limited number of minutes.

In the French service the physiological fact is recognized that children and minors require longer periods of repose than adults to maintain them in health, and for this reason a regulation prohibits boys from keeping night-watches.

The subjects of clothing, lodging, and personal hygiene are treated in the second chapter of the second book.

The French sailor's sack or clothing outfit required by the government is thus stated.

Quantity.	Articles.	Cost of each.	Total cost.	Estimated duration.
		fr. c.	fr. c.	months.
2	Cloth jackets	14 75	29 50	18
1	Loose sack (cabau)	23 55	23 55	30
2	Cloth pantaloons	11 65	23 30	12
2	White linen pantaloons (duck)	3 75	7 50	9
2	Fatigue trowsers, linen	3 55	7 10	12
1	Jumper (vareuse)	3 40	3 40	18
1	Pair of gaiters, white linen	1 15	1 15	6
4	Shirts, white linen	2 95	11 80	6
1	Swanskin shirt	6 45	6 45	18
1	Large sack	2 20	2 20	36
1	Small sack	1 80	1 80	36
1	Fatigue cap	2 45	2 45	12
2	Pairs woollen stockings	2 40	4 80	9
2	Pairs of shoes	5 10	10 20	4
1	Pair jugulars	10	10	12
1	Woollen neck-cloth	1 45	1 45	18
1	Lasting neck-cloth	1 45	1 45	12
1	Clothes' brush	35	35	36
1	Scrub-brush	35	35	12
1	Shoe-brush	35	35	24
			139 25	

The cost of this entire outfit of clothing is \$26.46.

Dr. Fonssagrives urges that under flannel vests and drawers should be added to this outfit and that cotton should be substituted for linen shirts, which should be made in such manner as to protect the chest.

Between officers of the line and medical officers there is always a discussion whether shoes should or should not be worn by sailors on board ship. Our author insists the shoes should be worn.

He also remarks that the short jacket is a cause of lumbago, because between its bottom and the waistband of the trowsers there is a space through which the shirt appears, and at that point the back is comparatively unprotected. For this reason, he suggests the wearing of a red flannel belt or sash of several turns around the body for the protection of the loins. He recommends a straw hat in place of the stiff-glazed or waxed black hat worn by French sailors, which is uncomfortable and unsightly; and that the uniform caps worn by officers should be provided with vizors, broad enough and long enough to shield the eyes from glare of light, and to shade the nose from the sun. He condemns the cocked-hat *in toto*.

The outfit of the sailor in the navy of the United States is much more in conformity to the laws of hygiene. It is as follows:—

1 pea-jacket	\$11 00	1 seamless cap	1 00
1 blue cloth trowsers	3 39	1 black silk handkerchief	1 00
1 blue flannel overshirt	1 60	1 mattress, hair	4 90
2 under-flannel shirts	2 32	2 blankets	3 90
2 woollen draws	2 16		

\$31 27

The bedding of the sailor consists of a hammock, mattress, and blankets; pillows and sheets are very rarely included. The hammock is an oblong piece of canvas of appropriate dimensions, which is suspended by small lines or cords, attached to each of its ends, from which they converge to be secured to a hook in a beam of the deck above. The hammock, containing the mattress and blankets, constitutes the sailor's lodging or sleeping

apparel, where he lies, almost always parallel with the surface of the sea, undisturbed by the rolling of the ship, and not much affected by the pitching, to dream away his "watch below." The hammocks are rolled up in the morning, and stowed for the day around the top of the ship's sides, in a sort of trough, termed the "hammock nettings."

The writer once served in a large frigate where the captain caused the hammocks to be used in common by the two "watches" into which a crew is divided: the hammocks of one watch only were allowed to be hung up at night, and the men who had completed a four hours' watch on deck, occupied the beds just left by those who relieved them, and to equalize the wear and tear of bedding, the hammocks which were hung up one night, were left in the nettings the next. Independently of the objections of a hygienic nature to such a practice, the individuality of men is thus ignored, and they must feel themselves lessened in their self-respect, which for the sake of discipline and general morals of a ship's company, ought to be fostered. Under such a system, a man's bed virtually ceased to be his own property; he was required to share it alternately, first with one and then with another.

The nautical cot is an English invention. It consists of an oblong bag of canvas, stretched over a horizontal wooden frame, so that it has the advantage of a flat surface for the mattress to repose upon, and being suspended like the hammock, yields readily to the motions of the ship. It is useful for the sick, but less so than immovable iron bedsteads, because the canvas sides and ends of the cot obstruct ventilation.

Personal cleanliness is strongly insisted upon. In the social condition neglect of personal cleanliness, by contributing to the mephitism of the air in a ship, becomes detrimental to the health of those with whom one lives. Unfortunately, the scarcity of fresh water on board ships limits sailors to sea-water for their ablutions, which are too generally confined to those parts of the body which are habitually uncovered. The use of tooth-brushes is almost unknown among seamen. Bathing of the entire body is not frequent. Dr. Fonnagrives suggests that in steamers some arrangement might be made to enable every man to have a fresh-water bath once every two or three months.

Our author considers that the moustache and beard should be worn as a protection against vicissitudes of temperature in their influence upon the teeth and respiratory passages.

Washing of clothes on board ship is imperfect. The operation consists in spreading the soiled garment on the deck, smearing it well with soap, and then scrubbing it with a brush, after which it is rinsed in sea-water and exposed to the air to dry. But there is always left in the tissue a deposit of hygrometric saline matter, which prevents it from becoming perfectly free from humidity. The whole system of clothes' washing is objectionable on many accounts besides that just alluded to, and in this connection Dr. Fonnagrives offers a suggestion which the writer would be pleased to see put in practice in the navy of the United States. He submits that at small cost, an apparatus might be placed in every steamer, by means of which washing for the whole crew might be effected by steam. It would be necessary only to provide a metallic box, say four or five feet cube, into which steam could be admitted. Into this box, the soiled clothing, previously steeped a few hours in a weak, alkaline solution, would be placed, and then subjected to the hot vapour. After this it would need to be rinsed, and then the water might be removed by pressure, and then exposed to dry,

either in the open air, or in a metallic case suitably arranged, to be heated from the boiler of the engine.

An apparatus of the kind suggested—such as are in use in many hotels—would contribute largely to the comfort and health of the crews of steamers.

The third book treats of nautical influences: the oscillations of the ship from impulse of waves, or rolling and pitching motions, causing seasickness, and originating a proclivity to constipation—the influence on the nervous system and on the organ of hearing, of vibrations, caused in ships of war by detonation of guns, by drums and musical bands, the shouting of orders through speaking-trumpets, the conversational noises of a crowd, and the rushing of the wind—are carefully noticed in the first chapter. The second chapter is devoted to a consideration of the composition, temperature and hygrometry of the nautical atmosphere.

The normal composition of the atmosphere by weight is,

Oxygen	.	.	.	.	.	23.015
Nitrogen	.	.	.	.	.	76.990

besides, carbonic acid from 0.0003 to 0.0006, traces of ammonia, iodine, and a variable quantity of aqueous vapour. Expired air is represented by

Nitrogen	.	.	.	.	.	75.2
Oxygen	.	.	.	.	.	17.0
Carbonic acid	.	.	.	.	.	5.9
Aqueous vapour	.	.	.	.	.	19.0

By the act of respiration, the air loses oxygen and nitrogen, and acquires aqueous vapour and carbonic acid; so that confined air, respired by any considerable number of men, or other animals, is greatly vitiated in a very short time.

Applying these data to the atmosphere of the interior of a vessel we find, in a ship-of-the-line of three decks, with the war complement of 1087 men, the entire crew resting five hours "below," by alternation of their watches, that :—

1. 40 grammes of aqueous vapour, 10 of which are derived from pulmonary exhalation, and 30 from cutaneous perspiration, are exhaled every hour by each man, which makes for the entire crew in five hours, 217.400 kilo., or about 580 lbs. Troy.

2. Each man exhaling hourly, 41.43 grammes of carbonic acid, the crew of the same vessel would expire, during the night, 225.172 kilo., or about 600 lbs. Troy of this gas.

3. An adult man absorbs, on an average, 700 grammes of air every hour: in five hours this crew of 1087 men, will absorb 3804.50 kilo., and deprive the air of 228.840 kilo., or about 610 lbs. Troy of oxygen.

4. The 1087 men take from the 3804.50 kilo. of air which they respire during the night, 6.467 kilo. of nitrogen—more than 17 lbs. Troy.

The chemical change of the air in the interior of the vessel during ten hours of night for the crew, or five hours for each half of it, is thus summed :—

Exhalation of	217.400	kilo.	of water
"	225.172	"	of carbonic acid
Absorption of	228.840	"	of oxygen
"	6.467	"	of nitrogen.

It is scarcely necessary to add that sulphurous, ammoniacal, and acid products derived from various animal dejections, miasms furnished by the insensible fermentation of the organic materials constituting the structure of the ship, or resulting from the decomposition of substances supplied as

"stores," are so many sources of aerial vitiation which chemical analysis does not reveal; but of these the sense of smell and health are trustworthy re-agents.

Until a recent date, it was usual to attribute all the evils of crowding men to the accumulation of carbonic acid in a confined atmosphere, but, although experiment has proved that carbonic acid when respired is a poison, it is evident, from the proportional quantity being so very small, and equally distributed throughout, under the law of diffusion of gases, that carbonic acid alone is not the cause of the insalubrity of a confined atmosphere.

It has just been stated that 3804.50 kilo. of air are necessary for the respiration of the crew of a three-decked ship, during five hours at night, sleeping below. Now, a cubic metre of air weighing 1226.00 grammes, these 3408.50 kilo are equal to 3103 cubic metres of air. Therefore 3103 cubic metres of air are required on the lower decks of a ship of the first class for the proper respiration of her crew. If she is sufficiently spacious to furnish the crew this amount of air, we may conclude that ventilation is unnecessary; but if, on the contrary, we find a manifest insufficiency of space, an opposite conclusion is inevitable.

The cubage, or cubic space of the three decks of a ship of the line (the orlop is not ordinarily inhabited by the crew in vessels of this class) is 3089.369 metres, from which is to be deducted the cubage of the bodies of individuals (1087×0.64 metres)—it is ascertained that the human body on an average displaces 64.24 litres of water—or 69.568 metres; the cubage of 96 cannons with their carriages, equal to 96.00 metres; the atmospheres circumscribed by partitions and taken from the common atmosphere (ward-room, cabin, hospital, &c.); the cubage of various objects on those lower decks, estimated at about 1,000 cubic metres, making an aggregate of 1165.568 cubic metres. These being deducted, we have 2823.801 metres instead of 3103, necessary to supply the demand of respiration.

These figures demonstrate a necessity for an active ventilation. In this calculation deficiency of air only is considered; but the accumulation of carbonic acid, and of miasms due to absence of its renewal, constitute a condition of mephitism which should not be forgotten.

In view of the fact that atmospheric air is the only substance without which a man cannot live three entire minutes, it is remarkable that so little attention is given to securing a sufficient supply of it on board ships of war, while every care is taken to secure potable water, food, clothing, sleep, without any or all of which a man can survive entire days.

The high temperature in the interior of ships, is not one of the least causes of the insalubrity of their atmosphere. It should be studied separately in sailing ships and steamers; the subject has not yet received the attention it merits. The temperatures of different parts of the ship, and of the external air at the same hours for comparison have not been observed to a sufficient extent to establish any satisfactory conclusions beyond the general fact that the thermometer stands higher on the orlop and in the hold, than upon the gun-decks of ships of the line.

Many causes conjoin to render a ship a centre of humidity. Porosity of the material of construction, a large part of which is submerged; imperfect closing of her seams or joints; penetration of water into the minute canals of the wood, under the influence of the peripheric pressure of the sea on the ship; the accumulation of a considerable number of living beings in a small space (the crew of a ship of the line exhales in a single night 217.400 kilo of aqueous vapour); the preservation of a large quantity of fresh water in vessels imperfectly closed; spray cast aboard from the sea;

age of the vessel—if new, the wood contains more of the water of vegetation, if old, she leaks more; frequent washings of the decks; the humidity of the pelagic atmosphere, hindering the evaporation of moisture accumulated within the ship; in equatorial regions the hygrometric condition of the atmosphere almost constantly approaches saturation.

The conditions of old ships are favourable to humidity, and hence it is that mould and cryptogamic growths of various kinds appear on board of them, in preference to newly constructed vessels.

Humidity is regarded to be among the most active causes of scurvy. All agree that a humid atmosphere is insalubrious, probably because it retards the natural depuration through the skin.

The prophylactic measures recommended are free ventilation; frequent airing of clothes and bedding; rubbing the wood work below decks with dry cloths, &c. And we may suggest that covering the whole berth deck with oil-cloth, similar to that employed in the ward rooms of steamers and other ships, would go far towards obviating humidity below the decks.

The third chapter of this book treats of crowding, infection, contagion and nautical epidemics.

Salubrity of a space is in a measure proportional to the density of its population. Typhus, or ship fever, is attributed to crowding.

Our author defines infection to be aerial contamination from miasm or effluvia which produces disease; it should be carefully distinguished from contagion.

1. Contagion is a peculiar animal principle which is a result of a morbid elaboration, a pathological ovule, which, introduced into a healthy organism, develops a disease analogous to that which produced it. Infection, on the contrary, requires for its manifestation the chemical disaggregation of organic substances, vegetable or animal. Contagion is a pathological poison; infection is a chemical poison; infections become extinguished in the organism in which it germinates, but contagion fructifies there.

2. The first origin of contagion is unknown, but it is rational to suppose that it would be produced only by a spontaneous generation or a metamorphosis of infection.

3. Although there are idiosyncracies which are refractory to the influence of contagion, they are fewer than those which resist infection; *pathological poison* is more general than *chemical poison*.

4. Although long periods of incubation of infectious diseases are cited, we may say, however, that the incubation of contagious diseases ordinarily exceeds those limits.

5. Contagion seems to be transmitted in preference by material communication (contact), infection is transmitted in preference by aerial dissemination. Sometimes, however, contagion is transmitted through the air (smallpox); sometimes also infection is transmitted by contact (putrid infections, corrupted water).

6. Contagion invades successively and by a generally observable filiation, individuals exposed to it; infection on the contrary, impregnates at once and simultaneously most persons submitted to its influence.

7. The propagation of contagion is independent of atmospheric conditions; it is probably in proportion to the completeness of the approximation of the morbid parasitic organism to the sound organism. The propagation of infection, on the contrary, is subordinate to local circumstances (winds, climate, temperature), which accelerate or retard its diffusion.

8. Contagion generally attacks the same individual only once; infection, on the contrary, does not protect the organism against a new invasion.

9. Contagion may act, by transportation, at considerable distances from the point of primitive departure; but infection does not extend its action beyond a limited radius.

There are four sources of infection; 1. Vegetable disaggregation, or phyto-hæmic infection; 2. Animal putrefaction or necro-hæmic infection; 3. Emanations from diseased organisms, or noso-hæmic infection; 4. Emanations from healthy organisms crowded into a too narrow space, or zoo-hæmic infection.

Phyto-hæmic¹ infection, as its name indicates, proceeds from the introduction into the economy of effluvia disengaged by putrefying vegetable matters.

Marshes are the prolific source of these effluvia, from which originate in hot climates a group of affections so vast and so acute that it has been said that the study of paludal diseases is a key to the pathology of those regions.

It is reasonable that we should find phyto-hæmic infection on board of ships, where an enormous mass of vegetable substance is an incessant site of a silent process of putrid fermentation. If we compare the uncovered marsh with the nautical marsh, we shall find all the circumstances which make the perniciousness of the first united in the hold of a vessel.

The mixture of fresh and salt water is particularly insalubrious; it is this mixture which makes the danger from marshes which improvement has abandoned; it is this mixture also which explains the deleterious influence of the mouths of great rivers in America and Africa; now, the hold is necessarily steeped in brackish water, and hence, there is a most abundant production of paludal emanations.

The moving of a marshy soil augments the diffusion of its effluvia, and so the oscillations of the ship under the influence of waves and storms often reveal the presence of an oceanic infection previously inactive.

To the phyto-hæmic infection are attributed intermittent fevers of various types, remittent fevers, continued fevers, and possibly yellow fever.

Necro-hæmic² infection is the morbiparous principle which proceeds from the decomposition of animal matters deprived of life.

The absorption of this principle is capable of producing diseases of very grave character. On board ships necro-hæmic infection frequently arises from putrid decomposition of viands (preserved fresh or by salt), and especially from the pullulation of parasites which fill the hold with their cadavers and deposit there the germs of an inevitable corruption.

Among these ship parasites are cockroaches, rats, and xylophagous animals. The fecundity of cockroaches, as well as of rats, is very great, and at times they become so numerous that it is necessary to suffocate them in mass by sulphur-fumes or otherwise, or abandon the vessel.

Noso-hæmic³ infection proceeds from crowding sick persons together. The noso-hæmic infection seems to give origin to hospital gangrene, malignant erysipelas, and purulent affections.

Zoo-hæmic⁴ infection results from the crowding of living beings, men or inferior animals. Ships carrying passengers or mules, horses, cattle of any

¹ Derived from *φυτὸν*, plant, and *αἷμα*, blood.

² From *νεκρὸς*, dead, and *αἷμα*, blood; poisoning by cadaveric miasms.

³ From *νῆσος*, patient, and *αἷμα*, blood; infection produced by accumulating sick persons in narrow limits.

⁴ From *ζῷον*, animal, and *αἷμα*, blood; infection produced by crowding together living beings, men, or lower animals.

kind in numbers largely in excess over the requisite space for their accommodation, are liable to diseases from this infection.

Our author presents a summary of the four species of nautic infection, and the diseases attributable to each.

1. *Phyto-hæmic infection*.—Intermittent and remittent fevers, simple or pernicious. Paludal cachexia. Vegetable colic. Yellow fever (?).

2. *Necro-hæmic infection*.—Epidemic dysentery. Certain furunculous eruptions.

3. *Noso-hæmic infection*.—Malignant erysipelas. Phlebitis. Purulent infection. Hospital gangrene.

4. *Zoo-hæmic infection*.—Typhus. Typhoid fevers. Typhoid complications of ordinary diseases.

The prophylactic measures recommended are a rigorous observance of the rules of hygiene, and the use of protective medicines, such as small doses of quinine, wine of bark, &c.

We must pass over his observations on contagion and epidemy without remark.

The subject of rendering ships more healthy is discussed in the fourth chapter of this book.

Ventilation and various plans and contrivances proposed for the aëration of ships are noticed somewhat in detail. In spite of them all, Dr. Fonssagrives seems to think that atmospheric air is doled out to the crew most parsimoniously, while efforts are made to secure supplies of every kind of aliment in ample quantities. Viands, drinks, clothing, may be unexceptionable in quantity and quality, and fail to maintain the vigour and health of men forced to respire an atmosphere deficient in the quantity and quality of those properties which are essential to perfect respiration. Naval constructors seem not to recognize the importance of ventilation of ships; our author's course of reasoning suggests a notion that if port-holes were not essential for the accommodation of guns, and hatches convenient for transferring ammunition to them from the magazines below, there would be no passages provided for the admission of air and light into the interior of the ship.

It is time, says our author, to apply to the objects of naval hygiene the processes of aëration which general hygiene has created, and to ascertain, through the scientific data, which she places before us, in what degree, and by what means the internal air of ships should be renewed.

Dr. Fonssagrives estimates that fresh air should be supplied in the sleeping places of a ship at the rate of 20 cubic metres hourly for every man. He suggests ventilation by aspiration, and that great numbers of air-tubes should be introduced into the structure of the vessel, which should communicate with the hold and berth-deck from the spar-deck, so arranged as to favour a free circulation in the interior of the ship; and that in steamers some contrivance should be connected with the engines to force fresh air into lower parts of the vessel.

He recommends the use of disinfectants, but believes they will be rarely needed where ventilation is sufficient.

Deficiency of light is detrimental to health, and for this reason he suggests the free use of thick glass in the upper deck, and that, where daylight cannot be conveyed below, artificial light from lamps and candles is useful.

The cleansing of ships is treated in detail. He advocates rubbing the lower decks clean with dry sand, or by the process known as dry "holy-

stoning." Although the voice of naval surgeons is almost unanimous against washing the berth-deck more than once in a week or in two weeks, on board of many ships it is daily deluged with water, under a pretext of making it clean and wholesome. A thorough waxing and dry polishing of the berth deck has been suggested, but an oil-cloth covering would better serve the purposes of preserving the health of the ship's company.

Considerable space is devoted to the consideration of the comparative healthiness of different kinds of ships. The conclusions from the statistics are, that sailing ships are very much more salubrious than steamers, and that sickness and mortality augment with the dimensions of the vessel, no matter whether moved by sails or steam.

The fourth book of this treatise is occupied with a statement of the influences on health, which are external to the ship. We cannot follow our author in his observations on the condition of the pelagic atmosphere, its temperature, humidity, and saline properties, nor stop to note his statements about ocean currents, storms, climate, and atmospheric electricity. He treats all these points, not profoundly, though at considerable length.

Nautic Bromatology is the title of the fifth book. Here the author remarks upon the different kinds of potable water—spring, rain, and river, and that resulting from the melting of ice, and of snow. The composition of water, the modes of preserving it on ship-board, water filters, distilled water, and several distilling apparatus are described. Next, there are essays upon French wines, including analysis, modes of detecting sophistications as well as preserving them; French and other brandies; cider and beer; full histories of chocolate, tea, and coffee, with figures of the plants which produce them. Vinegar, lemonade, and lime-juice receive each a brief notice.

Solid food is classified into feculent, sarcose or fleshy, and fatty aliments; condiments close the list.

Under the head of feculent aliments, which are less putrescible than animal substances, we have short essays on flour from different sources; its sophistications, the properties and characters of good flour; panification; biscuit and bread-making machines; the preservation of bread from mould and insects; rice fecula; tapioca; vermicelli; dried beans, peas; the lentil or *Ervum lens*, from which are derived the *Ervalenta Wharton* and *Revalenta arabica*; pressed and desiccated vegetables.

The sarcose aliments, or viands, include beef, pork, mutton, &c. Speaking of the mode of slaughtering and butchering beef cattle, he states that an ox yields from 54 to 57 per cent. of its living weight in meat, and that the average weight of bullocks of different countries varies from 89 to 269 kilogrammes.

Under the head of preserved viands we have notices of the *carne seca*, *tasajo*, pemmican, tablets of boiled meat, pastils of ozmazome; smoked meats, salted and pickled meats; conserves in vinegar, fatty substances, and in oil, charcoal, and brine. Our author prefers salted pork to beef, which he thinks might be advantageously reduced in quantity, or totally omitted from the seaman's ration. It is well known that beef packed for the use of our navy gradually and progressively indurates with age, and after three or four years, loses its nutritive qualities in a very great degree. The animal tissue seems to form a compound with the salt, partaking somewhat in appearance, at least, a chemical character. Indeed, salt merely retards but does not absolutely prevent the decomposition of animal tissue, as the records of the government exhibit in the quantities annually condemned to be thrown away.

The fatty aliments include milk and cheese; and under the head of condiments our author places salt, vinegar, lime-juice, peppers, mustard, spices, sugar, olive oil, butter, &c.

M. F. urges that variety in the nautical ration is more essential to health than quantity or even quality, and that the appointed hours of meals should be different. He suggests that six o'clock in the morning for breakfast, eleven A. M. for dinner, and six P. M. for supper would be better adapted to seamen than eight, twelve, and four o'clock for those meals. Those who are called to the midwatch (from midnight till four o'clock A. M.) might have furnished to them a light repast, a biscuit and coffee, for example, advantageously to health.

The elementary composition of the ration and the modes of preparing or cooking it are duly noticed. The book ends with notices of certain tropical fruits, poisonous animals, fish, &c. Speaking of antiscorbutics, he remarks that scurvy has its cause in many combined circumstances; in vitiated or insufficient air; in a long privation of telluric influences; in depressing passions, as well as in imperfect alimentation; and, consequently, there is, properly speaking, no antiscorbutic, as there is an antisiphilitic medicine. The remedy for scurvy is found in all favourable hygienic influences, just as its cause is found in all hygienic influences which are unfavourable to health. And so true is this that different elements of hygiene have been in turn and rightfully accused with the production of different epidemics of nautical scurvy. How often have we seen ships, but little crowded, pay their tribute to scurvy because they had long been without fresh provisions. How often, on the contrary, have we seen an abundance of fresh vegetables fail to prevent the scourge under hygienic circumstances in other respects unfavourable. Two vessels upon the same station, supplied in the same manner; the crew of one, under a mild and paternal discipline, finds in its cheerfulness an effective element of resistance; the crew of the other languishes in nostalgic torpor, and scurvy decimates it. This comparison is not a fiction, but an actual observation. Let no one suppose, however, that we seek to undervalue the influence of a badly constituted or insufficient alimentation in the production of scurvy; no one appreciates more fully than we do, this etiological element, but we are unwilling to attribute to it or to any other an exclusive action which does not pertain to it. Scurvy is a grave perversion of the nutritive function; nutrition owes its integrity and its deviations to other causes than to the materials of food; all external and moral influences co-operate simultaneously, and in them all we must seek both for the cause and remedy of scurvy at the same time; and ventilation, disencumbering, drying the ship, abbreviating cruises, frequent returns to port, mildness of the disciplinary yoke, cheerfulness, frequent reception of news and letters, are the *antiscorbutics* which, in our opinion, have more curative efficacy than the cress, cochlearia, lime-juice, or the salts of potassa.

Nutrition always suffers, whatever may be its alimentary resources in other respects, *if its elements are long removed from the influence of life*. There is in blood which has just lived, as in sap which has just circulated, an analeptic and restorative power which nothing can replace. Fresh or recent viands and vegetables are the two antidotes to scurvy; its appearance is imminent whenever they are long wanting. It must not be forgotten that from the moment life abandons an organic alimentary substance, chemical force takes its place; its molecular operations, silent, hidden, slow but real, produce changes which health wonderfully appreciates long before the gross limit of commencing putrefaction which alone strikes our senses.

The most perfect conserves are in this category; their chemical condition is not that of fresh aliment, and nutrition quickly perceives it. Here is the part which must be referred to aliments in the production of scurvy; insufficient though *fresh* nutriment will beget anæmia; a sufficient nutriment but in the process of slow chemical decomposition will engender scurvy.

If such is one of the sources of the scourge of ships, we should take every care to combat it, by diversifying as much as possible the monotony of preserved vegetables and viands by green vegetables and fresh meats, the only alimentary antiscorbutics which we recognize. The seaman's ration is richer, more reparative than is necessary to maintain his health and strength. How comes it then that it is not sufficient? It is not that he needs only so many equivalents of nitrogen or carbon daily, but especially demands that these elements may have chemical groupings which approximate those which they held during the *life* of the alimentary substances. It is in this the ration fails, and which we should give to it as frequently as possible.

The extreme hygienic importance of supplying to crews in port the fresh meat of mammals or fishes is insisted upon. Green vegetables are not less indispensable, and instinct very often induces sailors to seek with avidity this food, even in defiance of a normal repugnance. Whalers eat with relish raw potatoes, the leaves of the least edible vegetables; those which have no green part are unsavory to the sailor thirsting for vegetable sap.

The sixth and last book into which the work is divided is devoted to the moral influences to which sea-faring people are subjected.

Separation from friends, and the rupture of habits and of affections, forced approximation with strangers who may not be congenial are special influences on nautical life, from which may arise weariness, hypochondria and nostalgia. Each of these is duly treated. The influence of the passions, emotional maladies, amusements, discipline, punishments, authority and obedience on board ship are separately considered, but the writer has already exceeded the limits he proposed to himself in preparing a sketch of the contents of this volume, which he recommends to the study of nautical practitioners. The work is perhaps chargeable with prolixity and an over ambitious style, but the fulness of detail, and the many bibliographic references it contains compensate for these faults.

W. S. W. R.

ART. XIII.—*Clinical Essays*. By BENJAMIN W. RICHARDSON, M. A., M. D., Senior Physician to the Royal Infirmary for Diseases of the Chest. Vol. I. JOHN CHURCHILL, 1862. 8vo.: pp. 272.

Dr. RICHARDSON's name is familiar to medical readers on this side of the Atlantic, as the author of a work on the *Cause of the Coagulation of the Blood*, which gained the Astley Cooper prize, for 1856. This work has been reviewed by an able hand, in a former number of this Journal.¹ Dr. Richardson's explanation of the liquid state of fibrin in the blood, viz., that it is due to the presence of ammonia, if true, has important practical applications, and, in the work referred to, subjects of much importance, in a practical point of view, are incidentally introduced; we may mention par-

¹ Number for July, 1858, p. 139 *et seq.*

ticularly the production of endocarditis, by injecting a solution of lactic acid into the peritoneal cavity of the dog, and the occurrence of fibrinous coagula within the cavities of the heart, in the course of various diseases. A perusal of the work could not fail to impress the reader with the belief that the author is a zealous, pains-taking worker, anxious to extend the boundaries of our knowledge, and improve the resources of our art. Such a man is not likely to rest satisfied with the production of a single work, and we have now the first of a prospective series of volumes, to consist of essays relating to the various departments of medical science. He proposes to issue, under the title of the *Asclepiad*, a half-yearly or yearly volume, like the one now published.

The present volume contains seven essays on subjects having no special relation to each other. The first essay is on *Subclavian Murmur*; the second is on *A Diseased Condition of the Nails*; the third is on *Reduplication of the Second Sound of the Heart*; the fourth is entitled *Contributions towards a more perfect Clinical History of Scarlet Fever*; the fifth is on *Pulsatile Pulmonic Crepitation*; the sixth is on *Uræmic Coma*, and the seventh is on *Cardiac Apnoea*. We propose to review these several essays, with such brief comments as may suggest themselves.

Subclavian Murmur.—It is well known to auscultators that a bellows murmur, synchronous with the ventricular systole, is occasionally heard when the stethoscope is applied in the infra-clavicular region, over the subclavian artery. It is also well known that this may be a sign of aneurism, of tubercle, or of anæmia. We have met this murmur repeatedly, when neither of the conditions just named were present. In order to obtain data for conclusions respecting its causation and bearings on practice, Dr. Richardson examined two thousand patients with reference to its existence. It was well marked in 51 cases, or 2.55 per cent. Of these 51 cases, 48 were males, and only 3 females. It was not found in any patient under 18 years of age, although many children were included among the patients examined.

Among the cases examined were represented a great variety of diseases. Of the cases which furnished the murmur, the larger number (18) were cases of chronic bronchitis. Phthisis existed in 12 cases; anæmia in 10 cases; dyspepsia in 7 cases, and disease of the heart in 3 cases.

An analysis of the 51 cases, with reference to occupation, furnished a curious result. In the majority of cases the patients were cabinet-makers, carpenters, sawyers, or engaged in other manual labours, in the exercise of which their arms were thrown forwards and downwards. This result did not depend on these classes of labourers forming a majority of the whole number of patients examined, for an analysis of the latter showed a larger number of tailors than cabinet-makers, more clerks than tailors, and more sempstresses than clerks. Subsequently, Dr. Richardson collected eight cabinet-makers, who were quite well, and found that all of them presented the murmur.

"Blending, therefore," he remarks, "these facts with those which tell us how rare the murmur is in women, and that it is absent in children, I am driven to the inference that particular mechanical actions of the arms, long continued, have an influence in producing the peculiar sound."

Dr. Richardson has observed that the murmur is liable to be affected by the movements of the arm. The sound is at its minimum of intensity when the position of the arm is nearly down by the side of the patient;

the maximum of intensity is obtained when the arm is slightly raised above the right angle to the body, and varying gradations are produced by movements between these extremes. It is also liable to be affected by the respiratory movements. It may be developed by a moderately full inspiration. A very deep inspiration may either intensify, or stop it. A prolonged expiration will often remove it. A fremitus is sometimes felt by placing the finger over the artery at the point where the murmur is heard.

Practically, the facts concerning a subclavian murmur are important with reference to its value as a sign of aneurism and tubercle. The author states that he has met with four instances in which the murmur was set down as aneurismal. We have met with an instance in which the murmur, being notably loud and rough, suspicion of aneurism existed, and in this case an autopsy showed no disease of the artery, the heart, or the lungs; the patient was intensely anæmic. It is certain that an arterial murmur alone should never, in any situation, be considered as adequate evidence of aneurism. Other signs or symptoms must be conjoined to warrant a diagnosis. And, on the other hand, it may be well to remind the reader that absence of murmur is by no means proof that aneurism does not exist. A murmur in aneurism is frequently wanting. We have reason to think that this fact is not as generally known as it should be.

As a sign of phthisis, a subclavian murmur may have some value as one of the incidental or accessory signs to be brought to bear on the diagnosis of that affection. Yet, in itself, it has very little diagnostic value. Dr. Richardson's observations show this conclusively, and in this respect they are valuable. We have repeatedly met with this murmur in examinations of the healthy chest, in persons not anæmic. Its value as a sign of phthisis depends on the co-existence of other signs, and of symptoms pointing to that affection. In combination with other signs, a certain amount of significance belongs to it.

It is evident that a murmur in the subclavian artery is of no value as a sign of either aneurism or tubercle, when it depends on anæmia, and when it is propagated from the heart. It may be considered as an anæmic murmur whenever a co-existing murmur is found in the carotids, and, still more, if the venous hum be present. It may be considered as a propagated murmur whenever it resembles in pitch and quality a co-existing aortic murmur.

On a Diseased Condition of the Nails.—In this essay the author gives an account of three cases of an affection known by French writers as "psoriasis of the nails." The affection is characterized by a dirty glazed discolouration, followed by "crumbling down of the nail-structure from the edges of the free margin, with more or less of irregularity, thickening from the under part, cupped surface, depression, and looseness." In two of the cases there was a pre-existent syphilitic taint, and in two cases the skin was affected with a scaly eruption. In two of the cases Fowler's solution appeared to be useful.

On Reduplication of the Second Sound of the Heart.—The author reports a single case of reduplication of the second sound of the heart, and is led to the conclusion that it must be produced by "a want of simultaneous action in the aortic and pulmonary semilunar valves." Although he makes no reference to this explanation as having been offered by others, he is, of course, aware that it is the explanation now generally adopted. The credit of having first offered the explanation is, we believe, due to a French

writer, M. Pressat. Bonillaud, who first pointed out the occurrence of reduplication, at first explained it by supposing that the systolic contraction of the ventricles, instead of taking place in a continuous manner, was interrupted, or divided into two acts. Subsequently he adopted the commonly received explanation.

Dr. Richardson has not met with an example of reduplication of the first sound, but he states that others have done so. We have met with instances in which the first sound alone appeared to be doubled, and in which both sounds were reduplicated. Reduplication of the second sound is undoubtedly the variety most frequently met with. In point of fact, we suppose that neither the first or the second sound is ever doubled alone; in other words, both sounds must be doubled, but we may be able to distinguish only the reduplicated first or second sound, generally the latter. The reason for the actual reduplication of both sounds, whenever one is doubled, is obvious. The aberration proceeds from want of synchronism in the ventricular contractions. Now, this want of synchronism must, of course, affect equally the auricular and the semilunar valves.

The mitral and tricuspid valves, as well as the aortic and pulmonic, cannot act in unison. But why is it that the reduplication of the first sound is not as frequently perceived as that of the second sound? The answer to this question involves a correct explanation of the mechanism of the first sound of the heart.

Dr. Richardson is of opinion that the first sound is produced by the tension of the mitral and tricuspid valves. That it is so in part, is undoubtedly true; but another sound is combined with this, viz., that produced by the impulsion of the apex against the thoracic walls. This is susceptible of demonstration, as we have shown.¹ Now, when the ventricles fail to contract in unison, the element of impulsion in the first sound is likely to be weakened, or wanting, and the sound which remains, viz., that produced by the tension of the mitral and tricuspid valves, is feebler than the second sound. The second sound, under these circumstances, becomes the louder or accentuated sound, even directly over the apex. Subdividing the first sound still farther into the mitral and tricuspid, each being produced separately, it is easy to understand that one may fail to reach the ear, viz., the tricuspid sound. This is the reason of the apparent want of reduplication of first sound, when the second is reduplicated. We say *apparent* want of reduplication; it is really reduplicated, although the fact be not appreciable. But we believe in most cases in which the second sound is doubled, the first sound will be found to be also doubled, if auscultation be practised in the proper place. The reduplication of the second sound is best heard at the base of the heart, although it may be appreciable over the whole præcordia. The reduplication of the first sound may be heard within the situation of the apex, between the point of apex-beat and the right border of the heart, and not be discoverable elsewhere than in this situation.

In the case related by the author there coexisted great sense of oppression in the chest, dyspnoea, and lividity, and prompt relief was obtained by a warm bath. Reduplication, however, is not always associated with these symptoms. It occurs in connection with various affections, and it may or may not be incidental to some organic lesion.

Contributions towards a more perfect Clinical History of Scarlet Fever.—Scarlet fever has been considered as very rarely occurring in babes

¹ Prize Essay, Am. Med. Association Transactions for 1855.

at the breast and children under two years of age. The author shows this opinion to be not altogether correct. Of 431 cases collected from different sources fifteen were under two years of age. An examination of the mortality tables of the Registrar General shows that out of a total of 12,962 deaths from scarlet fever in children under five years of age occurring in the county of Kent in 1843, in London in 1845, 1846, and 1848, and in England in 1847, the number of cases under one year amounted to 1289, and the number between one and two years 2874, making the total under two years 4163. Statistics show that the disease most frequently occurs in the third and fourth years of life, that it declines rapidly after the fifth year, and that after forty the exemption from liability to it is almost complete. The susceptibility of the system to a special poison at one period of life, and the loss of this susceptibility at another period belong among the many mysterious facts relating to the living body, which at present we can only wonder at without attempting an explanation.

From statistical data, Dr. Richardson deduces the conclusions that sex has no influence predisposing or otherwise on scarlet fever; and that the disease is most prevalent in Great Britain in the months of October, November and December.

The author has known the disease to occur twice in the same patient and states that he has himself suffered from the disease three times. That exceptionally the disease recurs not only once but repeatedly must be considered as well established. It is true that in many instances an error with regard to this point arises from confounding roseola with scarlatina, but exclusive of these, cases have been observed by those fully competent to discriminate the affection correctly. A colleague who has bestowed special attention on the diseases of children and enjoyed large opportunities for observation,¹ lately mentioned to the writer an instance in which a patient had been distinctly affected with scarlet fever three times. Nor is the fact of the recurrence of this disease surprising in view of the fact that all the other eruptive fevers, as well as the continued fevers, occasionally attack the same person more than once.

With regard to fatality, the mortuary tables of the Registrar General of Great Britain show that the disease is more fatal in towns than in the rural districts, and that amongst the communicable diseases, scarlet fever ranks second on the list, the fatality being exceeded only by the returns of typhus fever, the latter including cases of both typhus and typhoid fever.

Dr. Richardson thinks it desirable that the three types of scarlet fever, viz., scarlatina simplex, anginosa and maligna, shall be considered as constituting but one disease. We must confess surprise at the intimation that these types are considered by any as distinct affections, and it seems to us gratuitous to adduce facts to prove that they are but different varieties of the same disease. However, some of the facts stated under this head are interesting in themselves. One of these facts is, that the poison derived from the mildest of cases may give rise to the most malignant form of the disease, and conversely, the disease may be mild when the poison comes from a malignant case. Another fact stated is, that neither season nor any known meteorological change, affects the character of the disease. It is a common belief that the type and intensity of the disease vary greatly at different seasons. The author thinks there is no ground for this belief. Out of a given number of cases, he thinks there are a proportionate number of mild and severe cases. We quote his remarks on this point.

¹ Prof. Geo. T. Elliot.

"It happens, not uncommonly, that a district of country remains for many years free from an epidemic visitation of scarlet fever. In the period during which the disorder is absent, large numbers of children are born, each one susceptible to the affection. Suddenly, the disease is set up by the introduction of a case into the locality; and the train once lighted, every house becomes the *habitat* of the dreaded visitor. In such epidemics as these, there are always a large number of malignant cases and a frightful mortality; but there is an equal number of milder cases always to be found, if sought for with care; and even a larger number of mild than of malignant cases, in proportion to the population attacked. My own observations would lead to the opinion that the proportion of malignant to mild cases is as one to five; but this is a point which requires much more elaborate investigation than I have been able to bestow upon it."

Another common belief is, that the disease, as regards its type and intensity, is influenced by locality: and this the author thinks is a mistaken belief. He thinks the disease is as likely to present its mildest phases in low dirty houses, and in foul unventilated chambers, as in the rooms of the well provided classes, where the strictest cleanliness and the most perfect ventilation are provided, although these circumstances affect materially the successful treatment of the disease. So, also, as regards the physical condition of the patient at the period of attack, the weakest of the members of a family, and the ill-fed children of the poor, are not more likely to suffer from the malignant forms of the affection, than the strongest and the well-fed children of the rich. Why one person experiences a mild attack and another person is speedily destroyed by the disease, is one of the mysterious facts, which, with our present knowledge, we cannot explain. We can only say that "there is in the organism itself a directing cause which modifies the violence of the poison, or intensifies its action."

Dr. Richardson shows from the analyses of Andral and Gavaret, that the fibrin of the blood is increased in scarlet fever. Adopting the terms introduced by Franz Simon, the condition is one of hyperinosis, instead of hypinosis; in other words, the blood is in the condition in which it is found in acute inflammation, instead of the condition belonging to the continued fevers. The changes in the urine also affiliate the disease to inflammation. The pigmentary matter is usually largely increased, the urates, deeply tinged, are apt to be abundant, and frequently there is a free deposit of uric acid. Moreover, during the acute stage the urea is increased and the chlorine reduced, conditions, as the author remarks, almost identical with those which occur in pneumonia.

The author omits to state whether these changes were observed in cases in which the affection of the throat was not sufficient to constitute a more or less severe local inflammation.

The fluctuations of medical practice are perhaps nowhere more conspicuous than in the treatment of scarlet fever. Within the last twenty years it has been treated, on the one hand, by means of the antiphlogistic remedies pushed to their present extent; and, on the other hand, by the free use of alcoholic stimulants.

Cold ablutions and the warm bath have each been in vogue. Various remedies have been supposed to exert a special influence over the disease, and not a few practitioners are content to let the disease have its course without any active interference. We shall give Dr. Richardson's views without stopping to discuss them.

Dr. Richardson considers that a morbid material is eliminated by the skin, and that the chief object of treatment is to increase the cutaneous excretion. The hot air bath seems to him best adapted to this end. Free

diaphoresis, in whatever way produced, would, he believes, in the presence of pure air for respiratory purposes, lead to recovery in the majority of cases. It would appear, however, that this belief is founded more upon speculative views and a distrust of other methods of treatment, than upon an extended experience. He refers to only twelve instances in which the treatment appeared to be efficient, a number too small to furnish evidence sufficient to establish the superiority of any therapeutical method.

Dr. Richardson believes the deposition of fibrin in the right cavities of the heart to be a fatal element in this disease. We are prepared to consider this as probable, although he does not in this essay cite the results of direct observation in support of his belief. We incline to think that in not a few instances of various diseases characterized by hyperinosis and enfeebled action of the heart, this accident is apt to take place, and that, in this way, an unexpectedly fatal result may often be explained. This subject seems to us not to have received the attention which it merits. On this subject Dr. Richardson's prize essay contains some valuable observations. Recognizing the liability to the coagulation of fibrin in the heart-cavities in scarlet fever, Dr. R. considers it as furnishing an important prophylactic indication. There are two remedies which, as he thinks, will tend to prevent this accident, viz., acetic acid and ammonia. Both these medicines have the property in common of holding the fibrin of the blood in solution; and they also tend to eliminate carbonic acid.

The author advocates the importance of administering these agents in small and frequently repeated doses, so that the blood may always contain them. They should be administered in a way to constitute a pleasant drink rather than a nauseous draught. The ammonia should be given until it is very distinctly presented in the breath. This may be determined by holding a glass rod moistened with hydrochloric acid for the patient to breathe on, when, if much ammonia be expired, the white characteristic fumes will be developed. The author, however, prefers to place a drop of pure hydrochloric acid on a microscope slide, and allow the patient to breathe some twenty or thirty times over the acid surface; then the glass slide being gently dried before the fire, or near a spirit lamp, there will be left a characteristic crystalline deposit which is represented in the book.

The author attaches but little importance to the local treatment of the throat in scarlet fever. He thinks he has known great injury done by the excessive application of caustics. We agree with him cordially in this regard.

On Pulsatile Pulmonic Crepitation.—The physical sign, which the author designates by this name, is described in the following passage:—

"It is a loud, harsh, crackling sound, resembling that which may be produced by inflating a piece of lung-tissue, and, during the inflation, making forcible, quick compression of the lung, so as to dislodge rapidly the air from the vesicles. The sound is heard only at the time when a pulsating structure, near to the point where it is met with, is presenting its impulse. Even then it is elicited only when the lungs are charged with air. Sustained inspiration gives a condition in which the crepitation is presented at every impulse of the pulsating organ. Sustained expiration removes the crepitation, leaving to be heard the simple pulsatile sound of the vascular structure, and nothing more. The sound may be met with over the heart—i. e., between the heart and the thoracic wall—or over the aorta—i. e., between the aorta and the thoracic wall."

Three examples are detailed; in two the sound being produced by the heart, and in the third by the aorta.

On Uræmic Coma.—We agree with the author in his remarks on the importance of the subject of uræmia to the student and practitioner. The

knowledge of the subject already acquired furnishes a striking example of recent progress in pathology and practical medicine, but much yet remains to be ascertained. It is not probable that we are acquainted with all the phenomena dependent on uræmic poisoning. The special conditions of the kidney, which lead to the accumulation of urea in the blood, are not fully determined. It is still a question whether the urea acts as a poison without change, or by its decomposition and the formation of another product. Finally, there is room for inquiry as to the most efficient measures of treatment. Dr. Richardson's essay on the subject is interesting, although not containing any positive addition to our knowledge.

He adduces six cases of uræmia with convulsions and coma, which he has observed, and two cases in which uræmia was simulated by the effects of the narcotic poison, *atropa belladonna*. He deduces, as the premonitions of uræmia, the following: Sleepfulness, manifested by an irresistible desire to sleep at almost any time and place; paralysis of extreme parts, as in the hands, hips, or feet; transitory confusion of mind, without vertigo; vomiting, which is sometimes severe; relaxation of the bowels; a peculiarly fetid condition of the breath, like the odour of sulphide of ammonium, and the presence of ammonia largely in the breath; unusual susceptibility to cold; oppression after a hearty meal, and a dangerous susceptibility to the action of mercury and opium.

The acute symptoms are coma, or convulsions, or both combined. They are generally preceded by suppression of urine, or by constipation, or by a chill. Squinting may or may not occur. The pupil is usually largely dilated and fixed. The respiration is irregular, and the pulse slow, intermittent, or irregular.

The diagnosis between uræmic poisoning and belladonna poisoning is difficult, the same phenomena occurring in both. The vomiting of suspicious matter is important as a guide to diagnosis.

From epilepsy, uræmia is distinguished by the tendency to diarrhœa, and by suppression of urine. Moreover, the convulsion in uræmia has not the tonic character of that in epilepsy; the asphyxia is not so marked, and the coma is more prolonged.

Before uræmia was known, cases doubtless constituted one of the varieties of apoplexy. From the latter it is distinguished by the skin being less hot, the stertor less marked, the blowing respiration less frequent, and the convulsions.

Uræmia is distinguished from poisoning by opium, by the dilatation of the pupils; by the temporary return of consciousness in some cases; by the absence of stertor; by the convulsions, the looseness of the bowels, and suppression of urine.

The author does not regard the presence of ammonia in the breath as of any peculiar diagnostic value, inasmuch as ammonia is present in health, and is expired in excess in many diseases.

In uræmic intoxication the blood presents the physical and chemical peculiarities of alkaline or alkaloid toxæmia. It remains fluid after being removed from the body, or separates into loose shreddy masses of fibrin. The red corpuscles are deformed, and lessened in number. There is an excess of serum in proportion to the solid constituents. The amount of urea is increased.

Dropsical effusions occur in consequence of the decreased specific gravity of the blood. The vascular organs are more or less congested. Inflammation of the serous or mucous, or parenchymatous structures is apt to occur, and in this way life is frequently destroyed.

As regards the morbid condition of the kidneys, uræmia occurs in connection with the exudation into the lobules and epithelial desquamation which follows scarlet fever; in cases of atrophy of the organs; in enlargement with granular, fatty, or waxy degeneration, and when no apparent lesion is present to account for the symptoms.

The author states that during uræmic coma there is invariably a large amount of albumen in the urine. We think this statement is too positive. We have lately observed a case of fatal uræmia succeeding scarlet fever, developed after the albumen (which had been abundant) had entirely disappeared from the urine. The urinary sediment, however, contained a large number of waxy and epithelial casts. This case illustrated the value of microscopical examinations of the urine, for the disappearance of the albumen naturally enough led to a false security as regards danger from uræmia.

That the poisoning in uræmia is due to the retention and accumulation of urea in the blood is proved by direct experiments. The author refers to the conclusive experimental researches of Hammond, on this point, published in this Journal. Frerichs has contended that the urea accumulating in the blood becomes poisonous, not as urea, but by being converted into the carbonate of ammonia. Dr. Hammond's researches go to show that in uræmia there is not an excess of ammonia in the blood. On the other hand, a series of experiments made by Dr. Barker, of Bedford, in 1856, show that ammonia given to animals in free and continued doses, does not give rise to the phenomena of uræmia. Dr. Richardson details these experiments, together with a series of experiments made by himself, showing that the effects of adding ammonia and urea to recently drawn blood, are not identical.

The treatment of uræmia involves attention to the skin, in order to have a free eliminative action in this direction. For this purpose, a daily ablution of the surface is important, and, when practicable, active exercise is to be enjoined. When the symptoms demand more active measures, the hot-air bath is of great value. We can testify to the relief afforded by the latter measure in cases of Bright's disease.

The diet of a patient threatened with uræmia, should be simple. Alcohols in moderation are useful. Animal food should be taken sparingly. Ripe fruits are useful. The amount of liquid taken should be moderate.

Dr. Richardson thinks that when uræmia is present, the kidneys should be left to do as little labour as possible. If the hot-air bath be not available, purgation should be resorted to. Diuretics, under these circumstances, he believes to be injudicious. We are not satisfied that the author is correct in his sweeping objection to diuretics. We think there is no objection to ascertaining if the kidneys will not respond to a diuretic remedy, and, if so, it may be useful, perhaps, as Dr. Bennett suggests, by washing away the casts which obstruct the renal tubes.

Many readers will be surprised at the remedy on which Dr. R. places his chief reliance when the uræmic coma is profound, and death imminent. It is bloodletting. He advocates its employment boldly until the oppression is relieved, and consciousness shows proofs of return. The rational ground for this measure will certainly not be considered sound by most readers, viz., that bloodletting is the readiest means of removing the poison directly. We remove in this way only so much of the poison as is contained in from fifteen to thirty ounces of blood, leaving the quantity which remains in the vessels not less poisonous than before. However, it should be added that the author attaches considerable importance to the relief of congestion of

the visceral organs, which he supposes to be one of the immediate effects of bloodletting, and he thinks that in consequence of this effect, diaphoretic and purgative remedies act more efficiently than without the abstraction of blood. He gives three cases in which bloodletting was apparently useful in uræmic coma, but we suspect a larger experience than this will be requisite to convince the majority of practitioners of the propriety of the measure.

On Cardiac Apnœa.—The author applies this name to the breathlessness caused especially by an insufficient supply of blood to the lungs. This may occur in consequence of mechanical obstruction on the right side of the heart from the deposit of fibrin. It may occur in consequence of disorganization and of dilatation of the muscular wall of the right ventricle, and it may be dependent on the presence in the blood of an alkaloid poison.

We give the diagnostic symptoms in the author's words:—

"The absolute diagnosis of cardiac apnœa may be stated thus. It is an apnœa with open air-passages; not panting breathlessness, but suppressed breathing. The struggle for breath is due to spasmodic contraction of the muscles of respiration, and consequently is marked by no rapid effort of those muscles to overcome a difficulty in the respiratory tract. The apnœa is described by the patient, if he can express himself, as arising from without, or from external pressure, as though his chest were compressed and stiffened. There is darting pain through the chest—cramp. The other parts of the muscular system, if they are involved, are cramped, not convulsed. The mind is usually unaffected. During the paroxysm there is either irregularity, or prolonged absence of the pulse; and the same condition, of necessity, is presented by the heart. The surface of the body is cold and pale; the countenance stormed with anguish, but not incessant; if the spasm permit, there is constant movement on the part of the patient in the effort to obtain relief. There is always pain of the acute kind, more or less marked. The pain is most frequent and most lancinating between two well-defined points—the lower part of the sternum, through the chest, towards the last dorsal vertebra; with this pain the breathing is locked up."

"There is generally more or less of muscular spasm and pain in other parts of the body. In some cases one limb is thus affected, or one arm, which, during the whole seizure, may be in a state of intense suffering, with more or less of rigidity; in other cases, where the seizures are very severe, this spasmodic condition may extend throughout the whole of the muscular system, causing a general tetanic constriction."

"In all cases of death from cardiac apnœa, the final act is one of persistent muscular contraction; the heart first failing, the muscles of the chest become fixed from tonic spasm; the voluntary muscles follow next, and the whole body, left more or less rigid, may pass into rigor mortis without any intervening relaxation of the muscular organs."

The physical evidence of cardiac apnœa, without valvular lesions of the heart, consists in the absence of pulmonary signs, absence of cardiac murmur, and irregular action of heart.

In the majority of the cases of cardiac apnœa, the author believes the difficulty, so far as the heart is concerned, to relate to the right side. This, he thinks, is usually the case in fatty degeneration, the right ventricle being more apt to be affected than the left. Exceptions to the latter occur; we happen to have under examination, at this moment, a specimen in which the degeneration of the walls of the left ventricle is evidently the greatest. In cases of fibrinous concretion within the heart, the deposit is oftener in the right than in the left cavities. The author cites examples in which the tricuspid valves were tied together by bands or strings of fibrin; we have met with such examples, and, also, with instances in which the mitral valve

was in a similar condition. The phenomena of cardiac apnoea, however, may arise in cases of obstruction to the flow of blood through the left cavities of the heart. We think Dr. R. does not give sufficient prominence to the latter class of cases. Whenever there exists aortic insufficiency to much extent, an unusual accumulation of blood within the left ventricle, distends and paralyzes the muscular walls of this cavity, inducing symptoms of cardiac apnoea, and frequently sudden death. In cases of this kind, as the author remarks, the lungs will be engorged with blood, whereas, when cardiac apnoea depends on obstruction of the right side of the heart, the lungs are bloodless, but the other important viscera are congested.

During a paroxysm of cardiac apnoea, the treatment embraces the following simple measures: plenty of air, the sitting or semi-recumbent position, and as much warmth as can conveniently be borne. We think the author should have added alcoholic and ethereal stimulants; in fact, the latter seems to us specially important, and not to be omitted without risk.

In persons predisposed to paroxysms, the treatment consists of measures to strengthen and invigorate the body.

The space which we have devoted to an analytical review of Dr. Richardson's work, is the best proof we can give of the interest with which we have perused it. We shall welcome cordially other volumes of the same practical stamp.

A. F.

ART. XIV.—*Medico-Chirurgical Transactions*. Published by the Royal Medical and Chirurgical Society of London. Vol. XLIV. London, 1861. Svo. pp. 286.

THIS volume contains twenty original communications. Abstracts of seven of these have been published in the numbers of this Journal for last year, in the quarterly summaries of improvements and discoveries in the medical sciences, and we shall now proceed to give an analytical review of the contents of the other papers in the volume.

1. *A Case of Gastrotomy for Extra-Uterine Gestation*.—In this communication, the author, Mr. JOHN ADAMS, gives the history of a case in which he successfully removed a full-sized foetus from the abdomen of a healthy young woman, six months after the period of gestation was accomplished. The circumstances in the case were such that there could be no doubt as to its nature. In operating, a vertical incision about five inches in length was made over the most prominent part of the tumour, beginning a little above and on the right side of the umbilicus, and extending as far as within an inch of the pubis. Contrary to Mr. Adams's expectations, the peritoneum was found here to be only slightly adherent to the cyst, which was about four lines in thickness and very firm. The foetus was extracted by the breech, the funis being divided so as to leave about two inches outside of the incision; the placenta was left, as it was found by traction on the funis to be firmly adherent. No opportunity was afforded of proving the precise situation of the extra-uterine foetus, and, very properly, no attempt was made to discover whether it was developed in the walls of the uterus, or in the abdominal cavity by attachment of the ovum to the peritoneal surface of the intestines. The wound closed entirely in the course of eight months, and the woman was well with the exception of a ventral hernia, easily retained by a suitable truss.

The practice pursued by Mr. Adams in this case has a forcible bearing

on several points of serious importance in connection with these cases of extra-uterine pregnancy. These points are—first, the propriety of performing any operation whatever; secondly, the time at which the operation, if thought desirable, should be performed; and, lastly, the method of performing it. As to the child, whenever an operation has been performed for the purpose of saving it, the result has always been fatal to the mother, and we must resign ourselves to leaving its safety altogether out of consideration.

Many cases have been recorded where, in extra-uterine gestation, the fœtus has remained innocuous for an indefinite period; in some of them, for more than fifty years. There are on record, also, numerous instances where the fœtus has been got rid of by ulceration into the vagina, rectum, colon, bladder, as well as by abscess opening externally either at the umbilicus or some other part of the abdominal walls. The probabilities are, however, that, sooner or later, inflammation and its consequences may arise in the cyst; and many mothers die during the efforts of nature to get rid of the incumbrance. The surgeon has here a very difficult question to settle, but it appears to us that he would do well, after having waited for such a time that the probabilities are that adhesion has taken place between the cyst and the walls of the abdomen, to remove the fœtus by an operation.

The only circumstance requiring particular remark in connection with the method of operating, refers to the placenta. From the few recorded cases of the operation, it appears that wherever any rude attempts have been made to extract the placenta, the cases have invariably been fatal.

II. *On an Operation for Pervious Urachus with Stillicidium Urinæ.*—In this paper Mr. THOMAS PAGET records two cases in which he successfully operated for the closure of pervious urachns. One was a female infant, little more than four months old; the other was a man aged fifty-five years. The operation consisted simply in vivifying the whole circumference of the aperture, and then holding the raw surfaces in contact by means of hare-lip sutures.

III. *Contributions to the subject of Compound Fracture; being an Analysis of 302 Cases.* By THOMAS BRYANT.—An abstract of this paper is published in the number of this Journal for April, 1861. Any general conclusions that may be drawn from the tables contained in it can be of little value, for no cases in surgery require to be treated more upon their individual peculiarities than those of compound fracture. There is, nevertheless, much of interest in the material thus presented to the profession.

IV. *An Analysis of Fifty-two Cases of Epilepsy observed by the Author.* (Second Series.) By EDWARD SIEVEKING, M. D.—An abstract of this paper is published in the number of this Journal for April, 1861.

V. *On Pulsating Bronchocele.* By JOSEPH BULLAR, M. D.—An abstract of this paper is published in the number of this Journal for July, 1861.

VI. *Remarks on the Cause of Closure of the Valves of the Heart.* By WILLIAM O. MARKHAM, M. D.—The perfect closure of the auriculo-ventricular valves of the heart during ventricular systole, is undoubtedly caused by the pressure of the blood upon their ventricular surfaces. In this way, and by the simultaneous contraction of the papillary muscles, the complete closure of the opening is perfected and maintained, while the blood is being forced into the arteries. There is difficulty, however, in explaining satisfactorily the cause which is effective in raising the valves upwards towards each other from the walls of the ventricles, so as to enable the blood to press upon them and tightly close them.

In this paper, Dr. Markham maintains that the valves are raised by the

agency of elastic tissue, which is so disposed within them as to render the action at once simple and effective. The elastic fibres are chiefly placed in the upper layer of the valves, so that they must necessarily tend to approximate the two borders of the valves in the direction of their auricular surface.

For our own part, we venture to express the opinion that the difficulty sought to be explained is a made one, for we believe that the auricular-ventricular valves never open so widely as to come in contact with the walls of the ventricle, and that there is always left some blood behind them.

VII. *Pathological Researches into the Diseases of the Ear.* (Seventh Series.) *Sebaceous Tumours in the External Auditory Meatus; their effects upon the Organ of Hearing, the Petrous Bone and the Brain, with Suggestions as to their Treatment.*—In this communication, Mr. JOSEPH TOYNBEE calls attention to a disease of the external ear caused by glandular hypertrophy of the sebaceous glands. The effect upon adjacent tissues is similar to that witnessed in hypertrophic tumours of these glands in other parts of the body, absorption of the bone being produced sometimes to so great an extent that a communication is formed with the mastoid cells, tympanum, cerebral or cerebellar cavities. These sebaceous tumours grow in the external meatus, and even reach a considerable size, causing absorption of the bone, without the occurrence of pain; indeed, as a rule, the attention of the surgeon is called to them either on account of the deafness which follows the occlusion of the meatus, from the presence of a fetid discharge, or from symptoms of irritation of the brain, which too often terminate in death. The only disease for which they are likely to be mistaken, is the presence of one or more osseous growths in the meatus, covered by the dermis; gentle pressure with the rounded extremity of a probe is, however, sufficient at once to discriminate between the two kinds of growth.

In their treatment, the effort of the surgeon should of course be to extirpate them as completely as possible; the evacuation of the contents of these tumours is of no permanent benefit, the capsule itself must be removed. This can be effected by making a crucial incision into the tumour, and, after squeezing out the laminae, the firm wall may be seized by a pair of forceps and the whole of it withdrawn.

Mr. Toynbee gives the detailed histories of six cases of these sebaceous tumours, with an account of the appearances found upon dissection after death; a table is added presenting the leading features of all the cases, eighteen in number, which have fallen under his observation, and in which he has been able to conduct dissections; and two cases are related that have been treated by him successfully.

This communication is accompanied by two plates containing a number of figures representing the appearances found after death in several of these cases.

VIII. *Further Observations on the Structure and Treatment of Uterine Polypi.*—In this communication Dr. ROBERT LEE presents the history of 103 cases of uterine polypi, reduced into a tabular form, in which the date, name, age, and social condition of the patients affected with polypus of the uterus which have ever come under the author's observation, fortunate or unfortunate, are recorded, and the symptoms, treatment, and result are given.

In three of these 103 cases no operation was performed, and the result was not known. In two of the remaining 100 cases the polypi disappeared spontaneously by some process the nature of which was not ascertained. Of the 98 cases which remain, five died before any attempt had been made to remove the polypus by ligature or by any other means. After deducting

these ten cases, there remain 93, of which 8 died and 85 recovered. Of the last 50 cases which have come under his own care, and in which the operation for the removal of the polypus has been performed by him, Dr. Lee states that not one has died.

For the removal of these polypi, on account of the hemorrhage that may follow their excision, Dr. Lee makes use of a ligature applied by means of a bent rod, great care being taken to remove as soon as possible the sloughing mass.

The success attending the use of the ligature in the hands of Dr. Lee, in these cases of fibrous polypus of the womb, is not at all in accordance with what is said of it by Dr. West, whom we have learned to regard as perhaps our highest authority in subjects of this kind. In his *Lectures on the Diseases of Women* (page 324), Dr. West says that the mortality is more than double that of the operation of lithotomy, as high as that which occurs in placenta prævia, and higher than the mortality from malignant cholera.

Two plates are attached to this communication, representing fibrous tumours in the womb.

IX. *Observations on the Growth of the Long Bones and of Stumps.* By GEORGE MURRAY HUMPHRY, M. D.—An abstract of this communication is published in the number of this Journal for July, 1861. It is accompanied by a plate containing numerous figures representing the appearances found in the bones of the animals experimented upon.

X. *Researches on Asphyxia; with Observations on the Effects produced by the Hot-bath in Asphyxiated Animals, and its use in the Treatment of Suspended Animation.* By A. T. H. WATERS.

XI. *Letter to the President of the Royal Medical and Chirurgical Society, relative to the preceding Paper on Asphyxia and the Use of the Hot Bath,* by A. F. H. WATERS, M. D. From Sir BENJAMIN COLLINS BRODIE.—Abstracts of these two communications are published in the number of this Journal for July, 1861.

The ill effects of the hot bath in cases of drowning are made very manifest in the experiments recorded by Mr. Waters. The effect of the hot bath being to stimulate the heart to increased action, by which more blood is sent to the lungs, it must necessarily increase the congestion of the lungs already existing. It is the reproduction of the action of respiration, and not the excitation of the circulation, that is called for in cases of drowning, and the hot bath could only be recommended from a want of knowledge of their correct pathology.

The manner in which death occurs in submersion is very beautifully shown by the experiments of Dr. Beau, recorded in a paper published in the *Archives Générales* for July, 1860. These show that in animals that are drowned, the immersion of the natural orifices of respiration and their impermeability to air, caused a sympathetic or reflex action, bringing about spasmodic occlusion of the sphincters or orifices of respiration, and arrest of the respiratory movements. There is a great analogy between death from drowning and death as it often occurs in tetanus.

XII. *A Contribution to the Pathology of the Pons Varolii.*—This communication, by HERMAN WEBER, M. D., contains the detailed history of several cases which illustrate, in a very interesting manner, the physiology and pathology of the pons varolii. In two of them, the focus of the disease was for some time small and circumscribed; there was no complication with affections of other portions of the cerebellum, nor was there any disturbance in the encephalic circulation. They exhibit experiments performed

by nature with greater accuracy than we shall ever be able to practise in vivisections.

The subject of the first case was a tuberculous man, 25 years of age, who had first vertigo, then motor paralysis in the limbs of the right side, afterward anaesthesia in the left side of the face; later, also diminished sensation in the limbs of the right, and diminished motion in those of the left, side; contraction of both pupils, especially the right; eighteen hours before death, attack of convulsions, followed by loss of power of articulation and deglutition, perfect motor paralysis and anaesthesia in limbs of right, imperfectly in those of left, side; without loss of consciousness. Tubercle in left half of pons Varolii, with softening in circumference, and hemorrhage in the latter.

The subject of the second case was a boy, aged 7 years, who was affected with chronic hydrocephalus and tuberculosis: six months before death, he had attacks of convulsions in left arm and leg; pain in right side of face; later, motor paralysis in limbs of left side, anaesthesia in right half of face; consciousness undisturbed; contraction of pupils, especially left; paroxysm of general shaking; four weeks before death, rigid contraction of paralyzed limbs; death under symptoms of tubercular meningitis. Tubercle in right half of pons Varolii, near origin of right quintus, with atrophy of the latter; red softening round tubercle; phenomena of tubercular meningitis.

In comparing these two cases, in which the anatomical alterations were, to all appearance, in the beginning almost the same, we remark that in both motor affection, first of the arm and afterwards also of the leg of the opposite side, together with attacks of vertigo, were the first phenomena to attract attention; in both cases, the sensibility of the affected limbs remained for a long period unchanged, and the side of the face opposite to the lesion was altogether unaffected; in both cases, contraction of the pupils of either side, especially of the opposite, was an early phenomenon; in both, sensitive affections of the corresponding half of the face and mucous membrane of the mouth and tongue; in both, at a later period, wasting of the paralyzed limbs, and, still later, rigidity of the same, impaired articulation, deglutition, and respiration. The intellectual functions and those of the special senses appeared throughout uninfluenced.

Among the physiological inferences which may be drawn from these cases, the following are worthy of special remark: 1. That the conducting fibres for the limbs passing through the pons, as well the motor as the sensitive, decussate below the pons. 2. That there are no sensitive fibres for the limbs in the lower or anterior part of the pons. 3. That the upper or posterior part of the pons contains sensitive fibres for the limbs. 4. That the intellectual functions of the brain are independent of the pons Varolii. 5. That the nerves regulating the state of the pupils seem to be in close connection with the pons Varolii. There was marked contraction of both pupils, greater on the side opposite to the lesion. 6. Extensive lesion of the pons seems to be associated with disturbance of deglutition, articulation, and also respiration. But it is possible that these phenomena do not depend so much on the alteration in the pons itself as on the influence exercised through it on the adjacent parts of the medulla oblongata.

XIII. *On Disease of the Kidney accompanied by Albuminuria.* (Second paper.) By W. H. DICKINSON, M. B.—In a paper contributed to the last volume of *Transactions*, which was noticed in the number of this Journal for April, 1861, Mr. Dickinson endeavoured to show that there are two essentially different diseases of the kidney that have been denominated as Bright's disease. One, which is characterized by increase of bulk,

the surface remaining smooth, is owing to an inordinate secretion within the tube. The other disorder produces for the most part diminution of size, renders the surface uneven and granular, and is the result of an affection of the intertubular substance. In this present paper, Mr. Dickinson completes his sketch of the disease by filling in the clinical details, showing how, during life, the one disease may be distinguished from the other, and how far the conclusions based upon morbid anatomy are warranted by what is observed before the death of the patient. For this purpose, he has extracted from the ample records of St. George's Hospital the particulars of every well-defined case of either of these disorders that was examined in the dead-house during ten consecutive years. The total number of "*post mortems*" in this period was 2350, in 250 of which the kidneys were granular, in 119 smooth and mottled.

The following table shows the percentage of affections accompanying each renal disorder:—

	Bronchitis.	Diarrhea.	Vomiting.	Pleurisy.	Pericarditis.	Peritonitis.	Pneumonia.	Edema.	Ascites.	Hydrothorax.
Smooth mottled kidney } 119 cases	18.5	20.1	26.0	64.3	27.7	25.2	20.1	66.3	33.6	28.5
Granular kidney } 250 cases	22.0	11.6	15.6	60.8	32.8	13.6	12.4	48.0	26.0	25.2

	Hydro-pericardium.	Epistaxis.	Erysipelas.	Girrhosis of the liver.	Atheroma.	Hypertrophy of heart.	Valvular disease.	Convulsions.	Simple coma.	Sanguineous apoplexy.
Smooth mottled kidney } 119 cases	24.3	0.8	15.9	10.9	21.8	24.3	17.4	10.9	10.0	2.5
Granular kidney } 250 cases	14.0	0.8	6.8	15.2	52.4	48.0	43.2	5.6	8.8	6.8

From what has been brought forward by Mr. Dickinson in this paper, the following conclusions may be deduced:—

The smooth mottled kidney is the result of chronic nephritis. The disease may befall any person, the youthful being the most susceptible. It results from cold, from scarlatina, or some similar cause of renal hyperæmia. It begins with marked symptoms, and usually terminates under a year. It is often temporary in its nature, or amenable to treatment.

The granular kidney is the result of a degeneration which is peculiarly apt to take place in gouty or tuberculous persons. It is never seen except in adults, and is most frequent after the age of forty. It commences gradually, and is quite indefinite in its duration. This state of organ is necessarily irreparable.

Chronic nephritis is characterized by dropsical effusion; a great liability to inflammatory attacks affecting the serous membranes and lungs; diarrhœa, especially in the later stages; pain in the loins, and finally coma, preceded by epileptic convulsions. The urine is scanty, often bloody, the

albumen abundant, and the specific gravity comparatively high. Casts imbedding entire epithelial cells are characteristic of the disorder.

Granular degeneration is to be recognized by a gradual failure of health, with sharpening of the features and discoloration of the skin; while dropsy is often absent or of small extent. Frequency of micturition is observed, especially at night, and there is great liability to bronchitis. There is also a tendency to valvular disease of the heart, as well as to extravasation of blood within the cranium. Epileptic convulsions sometimes occur, but a fatal state of semi-coma often comes on without any such antecedent. The urine is increased in quantity, except in the later stages, of low specific gravity, and often containing only a trace of albumen. The casts most commonly found are of coarse, granular matter.

This communication is accompanied by a plate, representing the appearance of the tubular casts, found in the urine in these two disorders.

XIV. *On a Case of Aneurismal Varix in the upper part of the Thigh, following the Employment of Pressure for the Cure of an Aneurism of the Posterior Tibial Artery.* By OLIVER PEMBERTON.—A considerable number of cases of spontaneous arterio-venous communication, between the various parts of the aorta and the contiguous vena cava, and between the aorta and pulmonary artery, have been reported during the past twenty years, instances of such communication, however, between the contiguous arteries and veins in the extremities are exceedingly rare.

In the present communication is given the history of a case, in which a man, fifty years of age, was cured by compression of an aneurism of the posterior tibial artery. At the commencement of the treatment, the pad was applied for three weeks to the artery on the pubes, for eight, nine, or ten hours, out of each twenty-four, and throughout the entire subsequent period of nine months to the vessel immediately below Poupert's ligament.

After remaining well for ten months, the man re-entered the hospital with symptoms of arterio-venous communication in the limb, in which the aneurism had existed, and after a sojourn there of eight months he died, apparently from dropsical effusion into the abdominal and thoracic cavities. On examination, a communication was found between the femoral artery and vein, at the place where pressure had been applied for the cure of the aneurism in the leg. The opening in the artery was nine lines in length, by nearly six lines in breadth. The edges of the aperture were rounded and smooth. The wall of the artery was irregular, being marked with depressions and some small patches of atheroma. The coats of the vein were dilated into a varix or pouch, which enveloped the artery, leaving the tube of the latter free and distinct, except behind, where the tunics of both vessels were blended together.

In commenting upon this case, Mr. Pemberton would attribute the opening formed between the artery and the vein, to the compression made use of to cure the aneurism. This, however, appears to us to be more than unlikely. At no time during the employment of the pressure, had any eschar formed, any disposition to phlebitis manifested itself, or enlargement of the neighbouring glands appeared; and symptoms of the communication did not show themselves until ten months after the man had been walking about perfectly well. It should, moreover, be taken into consideration that such an effect has never been known to follow compression in the cure of aneurism, and the autopsy showed that there was disease of the coats of the artery, which, we believe, is the origin of these arterio-venous communications. That disease which on one side of the vessels would cause false consecutive aneurism—on the other, against the vein, would cause adhesion of the vessels and arterio-venous aneurism.

This communication is illustrated by a plate, containing two figures, representing the exterior and the interior of the tumour.

XV. *On a Case of Aortic Aneurism, in which a Communication with the Pulmonary Artery was recognized during life by means of Physical Diagnosis.* By WILLOUGHBY FRANCIS WARD, M. B.—This case is of interest, as being, probably, the first in which such a lesion has been discovered during life by physical means, and it will be useful in establishing the rational diagnosis of similar lesions in future.

The patient was a fine-looking, well-made man, thirty-five years of age, complaining of slight cough, some general debility, and a little loss of flesh. Physical examination gave the following result: Cardiac dulness increased in the vertical direction. The apex of the heart could be distinctly seen and felt beating in the sixth intercostal space, and the heart was also to be seen beating in the fifth. Over the cartilage of the fourth left rib two loud murmurs were heard instead of the usual cardiac sounds; that, with the second sound, being of a hissing character, and so prolonged as to continue till the commencement of the next ventricular systole. At this same spot a very considerable purring tremor accompanied the second murmur. The first murmur was of a loud bellows character. Both murmurs were audible as high as the bifurcation of the common carotids, in the back, and over all the upper part of the chest; they did not seem to be peculiarly propagated towards the left subclavicular space. At the apex of the heart a single murmur only was to be heard, and this evidently attended, or rather replaced the cardiac first sound; it could be traced easily down to the ensiform cartilage. At the apex, the cardiac second sound was very distinct and quite natural; no trace of murmur.

The pulsation of the carotid was very visible, particularly on the left side, and marked by some, though not considerable, thrill. The heart's action was quiet and regular. The only abnormal physical sign in the lungs was some mucous râles at the base of each, equally on either side. Pupils contracted, but mobile; liver enlarged, no icterus; urine normal.

From this combination of physical signs, by a very interesting train of reasoning, Mr. Ward came to the conclusion that there was a communication between the aorta and the pulmonary artery, which was found at the autopsy to be the case.

XVI. *Account of a Case in which the Corpus Callosum and Fornix were imperfectly formed, and the Septum Lucidum and Commissura Molles were absent.* By J. LANGDON H. DOWN, M. D.—This communication, both from the curious nature of the case reported, and from the interesting general remarks of the author, is one of considerable importance as regards the pathological anatomy of idiocy. Idiocy is supposed by many to depend frequently on defective commissural connection between the cerebral hemispheres, but among fifty brains of idiots which Dr. Down has dissected, the example here communicated, is the only one he has found. This paper will be found by those particularly interested in such subjects, to be an important addition to the facts bearing upon them, which have been so ably generalized by Mr. Paget, in his communication contained in the XXIXth volume of the *Transactions*.

XVII. *Syphilitic Inoculation and its Relation to Diagnosis and Treatment.*—This paper, by Mr. HENRY LEE, is one of the longest and one of the most valuable in the present volume of *Transactions*. The conclusions to which the author arrives appear to be fully supported both by clinical observations and also by direct experiments. They will be found to accord with those maintained by Dr. Bumstead, whose excellent work

we had recently the pleasure of commending to the attention of the profession. The principal of these conclusions are as follows:—

That there are two forms of syphilitic disease, distinguished in their origin by the adhesive and suppurative kinds of inflammation. That one is followed by constitutional symptoms, and that the other is not.

That the adhesive form of inflammation may be distinguished from the suppurative by the nature of the secretion which it produces, and by the results of inoculation.

That both kinds of action may be communicated to the same individual at the same time, and that then the suppurative action will develop itself first, as having the shortest period of incubation, and subsequently the adhesive action will run its regular course.

That when these two actions are developed upon the same part, the affection which results has not the characters exclusively of the adhesive or of the suppurative inflammation, a mixed form of disease presents itself.

That the specific adhesive inflammation may be communicated to a person who has not previously had the disease, either directly by means of the discharge from a primary sore, or more indirectly through the secretions of a person affected with secondary symptoms.

That this latter mode of communication is not so common as the former, and appears to take place in general only when the part from whence the secretion is derived, is in a state of increased or unhealthy action.

That under the circumstances last named, any open sore or abraded surface on a syphilitic patient may furnish an inoculable secretion.

That such open sore or abraded surface, may be caused by mechanical irritation, by any secondary form of eruption, by a vaccine vesicle, or by a local suppurating syphilitic sore, in a person previously syphilitic.

That the blood of a syphilitic patient *may* communicate syphilis to a person previously unaffected with the disease.

That the cow-pox and syphilis *may* be inoculated at one and the same time, and that when such a twofold inoculation does take place, the results are, in some respects, analogous to those which follow the inoculation at the same time of an infecting and a suppurating sore.

That the pure vaccine lymph, even from a syphilitic subject, will not communicate syphilis.

This communication is illustrated by two coloured plates beautifully executed.

XVIII. *Cases Illustrating the Causes and Effects of Fibrinous Obstructions in the Arteries, both of the Brain and of other Organs.* By SEPTIMUS WILLIAM SIBLEY.—An abstract of this communication is published in the number of this Journal for October, 1861.

XIX. *Case of Irideremia Totalis.* By EDWARD CHARLES HULME.—The subject in this case was a man twenty-two years of age. The complete absence of the iris in both eyes was confirmed by examination with a lens and with the ophthalmoscope. There was no intolerance of light, and the man was able to read bourgeois type (No. 6 of Jager's scales) clearly at six inches distance.

A plate is added to this communication representing the eye magnified, and also its ophthalmoscopic appearance.

XX. *A Case of Tetanus of nearly Fourteen Months' Duration.* By DANIEL MEADOWS.—The case whose history is given in this paper is certainly a very interesting one, but the symptoms and origin as well as the duration of the disease, it seems to us, are not those of true tetanus.

W. F. A.

BIBLIOGRAPHICAL NOTICES.

ART. XV.—*A System of Surgery; Pathological, Diagnostic, Therapeutic, and Operative.* By SAMUEL D. GROSS, M. D., Professor of Surgery in Jefferson Medical College, &c. &c. Illustrated by twelve hundred and twenty-seven engravings. Second Edition, much enlarged and carefully revised. In two volumes. Philadelphia: Blanchard and Lea, 1862. 8vo. pp. 1062 and 1134, including a copious index.

THE prediction we confidently made in regard to the early exhaustion of the first edition of the *System of Surgery* of Professor Gross has been justified in the appearance of a second within two years and a half of the date of the original publication. There could be little doubt as to the success of a comprehensive and richly illustrated text-book on surgery from an author and teacher of the position and experience of Dr. Gross, and still less as to the wide and rapid circulation of a work which was not only the most attractive of its class to the student and young practitioner, but was really the first treatise intended "to embrace the whole domain of surgery" that had been produced in this country.

No competitor has since appeared from our native press, nor has any similar publication yet reached us from abroad, so that the field is still clear for the new edition. A very slight examination of our author's pages will afford abundant evidence that he has not relaxed his efforts in their preparation for reissue; and that he has considerably increased the value of his treatise, as a "*System of Surgery*," by the care which has been bestowed upon its revision, and by the extent and character of the additions which he has made to it. The statement of the preface is fully sustained that every chapter has been carefully revised, a large amount of new matter introduced, and nearly three hundred illustrations, many of them entirely new, have been added. At least two hundred pages of additional text have been introduced beside the wood-cuts; and yet, on account of the employment of a smaller type, the volumes have been reduced about one hundred pages each, in actual bulk.

Among the important topics, that of gunshot wounds is especially mentioned in the preface as having received particular attention. This fact may be noticed in the sections and chapters on the wounds of particular regions, as well as in the general section on the subject.

The chapter on diseases and injuries of the bones, especially the section on fractures, has been materially extended and improved. This improvement is still more observable in the chapters on diseases and injuries of the joints, including dislocations, and particularly in the section on coxalgia.

A similar alteration may be noted in the chapter on diseases and injuries of the extremities, especially the latter part of it, which treats of the lower extremities, and in the chapters on special excisions of the bones and joints, and on special amputations.

The additions here referred to, as well as many others in different chapters which need not be detailed, not only supply omissions in the previous edition, but, in giving the results of recent observations and conclusions, serve to maintain the position of the work as an indicator, in some degree, of the progress of surgery, more especially in questions of practice.

The only change in the order of arrangement, that we have noticed, is an advantageous one in the transposition of the chapters on diseases and injuries of the joints, and on diseases and injuries of the bones, respectively; the previous order being inverted, so as to terminate the first volume with the discussion of the latter topic, and to commence the second volume with the consideration of the former.

The large number of additional illustrations, many of them engraved expressly for the purpose, which have been distributed throughout the volumes, are, like all the others in the work, admirably executed, and are generally well selected. They are so introduced, from chapter to chapter, as to add decidedly to the usefulness and interest of the sections, in many places where the text remains unaltered. Some advantage has been gained also by the substitution of better wood-cuts in at least one or two instances.

The account which is here presented will afford a sufficient idea of the nature and extent of the improvement in the edition before us. It certainly presents an encouraging prospect of similar progress in the future editions, and justifies the hope, no less than the expectation, of an equally rapid succession of them.

We do not pretend to regard the "system" of Professor Gross as the most desirable exemplification of surgical teaching in the United States, or as a model text-book. Although authors' names are continually mentioned and their observations discussed, specific references are too imperfect to satisfy the reader who looks beyond the individual teacher. The author is unnecessarily dogmatic in matters of opinion, wherein exclusive views may only confuse inexperienced students, without convincing those who are more advanced. He indulges, also, in a few peculiarities of doctrine, and especially of nomenclature, the correctness of which we cannot agree to. Still, we do cordially admire his comprehensive treatise as a monument of ability, industry, and enterprise in author and publishers; and we respect it even more as the successful pioneer in a field, which ought ere this to have been occupied by competitors of yet higher aim and greater calibre. Until his excellent example and its prompt reward have aroused the needed emulation, we shall continue to be thankful for what has been received in the portly, closely printed, and beautifully illustrated volumes of Dr. Gross; and unhesitatingly recommend them to the medical student and practitioner of this country, as presenting the best text-book on the theory and practice of surgery within their reach. E. H.

ART. XVI.—*Reports of American Institutions for the Insane.*

1. *Of the Pennsylvania Hospital for the Insane, for the year 1860.*
2. *Of the Friends' Asylum, Frankford, for the fiscal year 1860-61.*
3. *Of the Pennsylvania State Hospital, for the year 1861.*
4. *Of the Mount Hope Institution, for the year 1861.*
5. *Of the Central Ohio Lunatic Asylum, for the year 1861.*
6. *Of the Southern Ohio Lunatic Asylum, for the year 1861.*
7. *Of the Eastern Asylum, Kentucky, for the year 1861.*
8. *Of the Michigan Asylum, for the years 1859 and 1860.*
9. *Of the Vermont Asylum for the Insane, for the fiscal year 1860-61.*
10. *Of the Maine Insane Hospital, for the year 1860.*

1. In the rapid progress of development of the modern system of treatment in mental disorders, the Managers of the *Pennsylvania Hospital for the Insane*, as has been shown by papers in preceding issues of this Journal, have recently, for the first time in America, if not in the world, begun the experiment of disconnected and somewhat remotely separated buildings for the patients of the two sexes. A trial of some years will be necessary to a complete demonstration of the merits or the demerits of this plan. The report before us was issued after an experience of but one year, and in the opening remarks, it is stated that the experiment, thus far, "has been entirely satisfactory, and the advantages which were hoped for from the new arrangement have been fully realized. The usefulness of the Hospital and the comfort of the patients have already been essentially increased, and there is good reason to believe that each coming year will be marked by steadily augmenting benefits to the afflicted, and show results that

must be truly gratifying to every one who has either by subscriptions, or in any other way, contributed to the accomplishment of this great work."

The old building, formerly occupied by both men and women, has been extensively repaired for the exclusive accommodation of women. "While the general air and appearance of the Hospital have been greatly improved, its arrangements for management and classification have been rendered very superior to what they ever were before." This building, like the new one occupied by men, has "sixteen distinct wards for patients, each ward having all the necessary conveniences for comfort and treatment, and thus giving facilities for a thoroughness of classification not before attained."

The subject of classification leads Dr. Kirkbride to the following very appropriate remarks:—

"The only proper classification of the insane must be based on the mental condition and social traits of individuals. Those whose society would most benefit each other, and have the least chance of injurious influence, should be together, and then great good instead of harm very often results from the association, while those whose proximity would be hurtful, must be kept separate. There was a time when, in some institutions, classification was based on ability to pay; but a moment's reflection would satisfy any one that the greatest wealth might be associated with the most repulsive habits, while in this country of changes, the best qualities of head and heart, and all that makes social life bright and cheerful, may often be found without much of this world's goods. There are extraordinary comforts and surroundings that every institution should be able to give to those who have the desire and ability to incur the expense, but this can in no way interfere with the obvious advantages of a minute and thorough classification."

	Men.	Women.	Total.
Patients at the beginning of the year	132	122	254
Admitted in course of the year	131	80	211
Whole number	263	202	465
Discharged, including deaths	112	79	191
Remaining at the end of the year	151	123	274
Of those discharged, there were cured	52	46	98
Died	15	11	26

"Of the deaths, five resulted from acute mania; six from the exhaustion induced by chronic mania and enfeebled digestion; five from apoplexy; four from pulmonary consumption; four from organic disease (softening) of the brain; one from epilepsy; and one from old age."

Under the head of "Premature Removals," mention is made of that persistent, and—judging from their frequent and urgent expression of it—*strong* desire to return to their homes, which is a prominent characteristic of many patients; and in reference to it, the following distinction is drawn:—

"This morbid desire to leave an institution is widely different from the natural wish to be at one's own home, and in the society of one's family, and which is much more moderate in its character and manifestations. The first is constantly found before convalescence has commenced, or in its very early stages; while the latter belongs to the state which approaches complete restoration. It is of almost daily occurrence that patients who in the early stages of convalescence talked of little but getting home, have, when quite well, been found as anxious as could be desired to avoid all premature action, and have willingly assented to every suggestion intended to secure their perfect and permanent restoration."

Believing that, of all the various components of an enlightened scheme of moral treatment, no one is second in importance to a liberal course of evening entertainments such as, for fifteen years, has been given at this institution, we consider it as important as it is interesting, again to mention the subject, and to exhibit the record of the gratifying success which has here attended the practice.

"The sixteenth course, now in progress, will occupy at least two hundred and fifty evenings, one-half the number being at 'the Department for Males,' and as many at 'the Department for Females,' on alternate evenings. As heretofore, they

are made up of lectures on a great variety of subjects, exhibitions of very superior dissolving views, musical entertainments and various other means for passing an hour pleasantly, which an enlarged supply of apparatus, and the generous sympathy of a number of kind friends have placed at our disposal. The entertainments at the two departments being on alternate evenings, whenever anything of special interest occurs at either, or as often as may be deemed desirable, parties of from twenty to forty pass from one house to the other, thus approaching more nearly the habits of regular lecture goers, who are differently situated, and giving additional variety to the course. A pleasant evening walk, to and fro, and the lecture-room entertainment, are often an effectual mode of changing the current of thought, which naturally would have place in the wards.

"It has been a subject for frequent remark during the past year, that a lecture-room, which formerly contained comfortably those who were disposed to attend, when all the patients were in one building, is now almost as full of females alone, while the enlarged lecture-room at the Department for Males' is correspondingly filled. At least twenty per cent. more patients of each sex attend than under the old arrangement, and without the slightest diminution of the good order which has so generally prevailed. As usual, these evening entertainments have been under the special charge of Drs. Smith and Jones, Assistant Physicians, whose interest in their success has added greatly to their attractiveness.

"Those very competent to judge have expressed the opinion, that the patients in this hospital are in the habit of seeing, nearly every evening, an exhibition certainly not inferior in character, and in some respects superior, to what has been found sufficiently attractive to fill some of the largest lecture-rooms in our great cities, nor would those who have attended both, hesitate to add, that in the matter of quiet, good order, and respectful attention, the hospital audience does not suffer by a comparison."

Among the recent novelties at this hospital, is a reception ward in which patients, upon admission, are detained a suitable length of time before placing them in their appropriate places among the other inmates. The advantages of this new arrangement are mentioned in the subjoined extract.

"Any one who will reflect for a moment, may imagine how great may be the shock to persons of sensitive feelings, who may never before have passed a single day with entire strangers, on finding themselves among a large company of people entirely unknown to them, and where all the surroundings are totally different from anything to which they had been accustomed. This would be still harder to bear, if, as might occasionally happen, they were left in this novel position to entertain themselves—an excited imagination giving a morbid and probably painful view of the place and its inhabitants. The arrangement now proposed, it is hoped, will prevent most if not all of this, and a proper degree of tact on the part of those having charge of patients in the reception wards, if it does not make the first impressions of a new comer absolutely pleasant, may at least prevent their being painful and injurious."

We find the following just remarks near the close of the report:—

"In the matter of visits among the insane, it is not intended to say that every well-disposed person is calculated to effect all the good that might be hoped for, from well-intended efforts. A cultivated mind is not alone enough for this work; nor is a good heart, nor deep religious impressions, nor always even all combined, desirable as each one of them is. There is something more necessary to make such labour specially profitable—something occasionally found when least looked for, or strikingly absent, when most desirable—and which may be described by the single word *tact*, a nice perception of the character, condition, and wants of others, and which, joined with the other qualities already referred to, makes this a field for labour which any one, who engages in it heartily, will soon discover to be much higher than ordinary works of benevolence, just as mind is superior to matter, and mental disease a greater sorrow than mere physical infirmity."

2. The statistics of the *Friends' Asylum* for the year ending with the close of February 1861, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	29	29	58
Admitted in course of the year	7	11	18
Whole number	36	40	76
Discharged, including deaths	7	8	15
Remaining at the end of the year	29	32	61
Of the discharged, there were cured	4	4	8
Died	1	1	2

Died of epilepsy, 1; cancer of the breast, 1.

In his remarks upon the causes of insanity, after having spoken of hereditary predisposition, Dr. Worthington says: "In other cases the predisposition, instead of being inherited may be acquired, and in these cases may also be transmitted to the offspring without ever being developed into an attack of insanity in the individual with whom it originated. The experience of the asylum furnishes some remarkable instances of this kind. Three brothers of one family have been, at different times, and three sisters of another, are at present patients in the asylum, and in neither family had insanity been known to exist previously."

"The lectures and exhibitions with the magic lantern have been continued during the winter."

"During the past summer a large circular mound of earth was made in the yard, connected with the lodge for excited male patients, and planted with flowers. This yard was occupied daily, in pleasant weather, by this class of patients, who, strange as it may appear, offered the plants no injury, and seemed gratified with having them near. Among the same class of female patients, plants, in pots, occupying the windows during the winter, and pictures on the walls, have contributed greatly to their gratification, and in no instance have they been injured by them."

"Of course not. Wherefore should they injure that which they cannot suspect of aiding or abetting supposed injury to themselves? wherefore destroy the flowers which bring pleasure to their senses and the calm, and quiet, and grateful influences of nature to their hearts?"

"Among the means introduced during the past year, may be mentioned an aquarium, placed in the library and stocked with a collection of fresh water fishes and aquatic plants. It affords an opportunity of observing the habits of these interesting little animals, which is frequently enjoyed by the patients. The games of cricket and foot-ball have also been used, for the first time, by our inmates, and have been participated in with much spirit by a considerable number of the men. During the fine afternoons of autumn, and even occasionally on fine days through the winter, the lawn in front of the asylum buildings has presented an animated spectacle of between twenty and thirty patients and attendants engaged, either as spectators or performers, in one of these exhilarating pastimes."

3. In the course of the year 1861, the *State Lunatic Hospital of Pennsylvania* became, for the first time, so full, that it was necessary to discharge some of the incurable patients, to give room for applicants whose cases presented a hope of restoration.

	Men.	Women.	Total.
Patients at the beginning of the year	153	138	291
Admitted in course of the year	84	50	134
Whole number	237	188	425
Discharged, including deaths	86	59	145
Remaining at the end of the year	151	129	280
Of the discharged, there were cured	15	15	30
Died	8	8	16

Died from the exhaustion of chronic mania, 9; consumption, 4; epilepsy, 1; gangrene of the lungs, 1; "disease of the brain," 1.

"The general health of the household throughout the year has been remark-

ably good, and the freedom from all acute disorders was greater than we could have anticipated."

"Our immediate proximity to the camp has seemed to require of us the reception of a number of cases for which no other accommodations could be had, and while the great majority of these have required very temporary shelter and little treatment, many have remained with us for weeks, and for some it may become the residence for months, or even years."

"From the very commencement of the national troubles every appliance of the hospital which could be of service has been freely placed at their disposal. During the spring and summer, thousands of pounds of beef and ham were cooked, and hundreds of gallons of coffee were made for those who were pushing onward to Washington, or who were returning; whatever articles could be made for the sick were prepared whenever they were desired; during the fall and winter, thus far, all from the camp who desired it have had the opportunity of bathing and of using the appliances of the laundry, and to none have we denied the privilege of becoming acquainted with the arrangements of the hospital.

"While thus affording to those of our own State every facility they desired, we have not been unmindful of the obligations of citizenship in ministering to those of other States, Ohio, Michigan, Wisconsin and Minnesota, who, by the necessities of their position, required such assistance as it was in our power to afford."

We make one extract from Dr. Curwen's exposition of the nature and characteristics of insanity.

"No definition of insanity has ever yet been given which would clearly and distinctly include all the variations to be met with. Certain forms may be very readily recognized and very clearly described, but there is still a large class of mental disorders which defy all accurate definition and are a source of grievous perplexity to all who have not made them their special study. In this class are included all those cases of mental disorder which have proved such obstacles to judges, lawyers and juries, and have even caused much division of opinion among medical men.

"To arrive at correct conclusions relative to this latter class, it does not become us to set up some imaginary standard, clothed with certain characteristics which we conceive should belong to it, but we should carefully and judiciously compare the conduct, character, the expressions and general tone and peculiarities of the conversation with what the individual was before the character we are now examining was developed; for we must constantly bear in mind that insanity is not some new thing engrafted on the individual, but in all cases is a perversion of his mental and moral powers, made known by the change in his demeanor, his affections, his passions and all those peculiar characteristics which go to make up the individual man.

"It may not be possible in this way to come at once to a conclusion in all cases, but justice to the individual and the cause of truth demands that such a course should be rigorously pursued. There may be, as there have heretofore been, cases which for a time will apparently fail to be decided by this criterion, but if the investigation is pursued cautiously, prudently, and in the spirit of an earnest seeker after truth, the result cannot be long doubtful.

"By this criterion we shall be able to decide those cases also for which medical men, or more strictly, physicians for the insane, have been said to have invented a term which should serve as a cloak for crime, and prevent the execution of the penalty of the law on men who have committed gross violations of the rights of their fellows.

"That such a doctrine has been used by ingenious advocates to attempt to screen great offenders cannot be denied; but because such doctrines have been abused by those who were more anxious to serve their client than to advance the cause of truth and justice, only proves that the best objects may be perverted to the worst purposes.

"The statement is not that men who have led a vicious life until their consciences are seared, as with a hot iron, are morally insane, but that men who have led correct and upright lives, have been all that could be desired as mem

bers of society, have, after an attack of fever or some severe bodily disease, had their moral powers so perverted as to lead them to the commission of acts at which formerly they would have revolted, and their mental powers so weakened as to prevent the perception of the incongruity of their actions with their professions."

4. We gather from the report of the *Mount Hope Institution*, the following tabulated history of the operations of that hospital during the year 1861.

	Men.	Women.	Total.
Patients at the beginning of the year	72	115	187
Admitted in the course of the year	74	47	121
Whole number	146	162	308
Discharged, including deaths	63	48	111
Remaining at the end of the year	78 ¹	119 ¹	197
Of the discharged, there were cured	23	19	42
Died	6	8	14

The diseases terminating fatally are not reported.

Aside from the above, 4 cases of mania à potu were in the hospital at the beginning of the year, and 31 were received in the course of the year. They were all discharged, recovered.

Any cause, of what nature soever it may be, which profoundly agitates the public mind, directly produces many cases of insanity, and often gives shape and character to the cases which originate in other influences. Hence it might reasonably be expected that the exciting political condition of our country during the last twelve or fifteen months, would considerably contribute to the populations of the institutions for the insane. The Mount Hope Institution, being near Baltimore, is at a somewhat central point of the startling events of the history of the past year, and consequently would be among the first of such establishments to be affected by their influence. In the report before us, Dr. Stokes writes as follows upon this subject:—

"In most of the cases occurring since the 19th of April, '*excitement of the times*' has entered more or less directly into the causation of every attack. Our experience therefore fully corroborates the remark of Pinel, that it would not be difficult to retrace, among the admissions into our insane establishments, the form of insanity especially appropriate to the exaltation of ideas prevalent at each epoch. One is the victim of the monomania of fear, and entertains the delusion that he is suspected of being a spy. He passes his days and nights in constant apprehension of being arrested and imprisoned. Fearing to go to sleep, he lies awake listening to every noise, and as his ear catches the sound of the distant footstep, he becomes dreadfully terrified and alarmed. His morbid and affrighted imagination conjures up before him the dreaded spectre of an officer intent upon his arrest. He begs to be permitted to deliver himself up to the authorities, and yet trembles when the desired opportunity is promised him. Another entertains the belief that he is suspected of disloyalty to the Government, and imagines that the eyes of every passing stranger are specially directed upon him—noticing and watching his every word and action. Dreading the confiscation of his property, he assigns over all he possesses to his friend. Then, to escape the dreaded disgrace of imprisonment, he eludes the vigilance of his family, and in a short time is brought back, having made an unsuccessful attempt to drown himself. A third loses his mind in consequence of the startling events of the 19th of April. He conceives the idea that he is believed to have taken an active part in the movement of that day, and to escape arrest, imprisonment, and execution, he makes a desperate attempt at suicide. With a razor he makes a ghastly gash in his throat, severing the trachea, but missing the carotids. For a whole month after this, this terrible fear overshadows his mind.

¹ These numbers are copied from the report; but, according to the preceding figures, they should be 83 instead of 78, and 114 instead of 119.

and the suicidal propensity abates nothing of its determined character. Three several times he tears the wound asunder, by the violent moving and twisting of his head, though his hands are confined in the muff, and he secured in his bed. By keeping his head firmly planted and nestled in an apparatus well wadded and stuffed all around, and by having an attendant beside him night and day, the wound is maintained in apposition and finally perfectly healed. It united, leaving scarce a scar, and the patient fully recovered his mind. A fourth is the subject of aural delusions. As soon as he drops off to sleep at night, he is roused from his slumbers by awful sounds in the far distance. Night after night he passes in intently listening to the terrible clash of armies in deadly strife. He imagines he hears the distant roar of artillery, the heavy tramp of thousands of horses, and the deadly rush of cavalry. Then reach his ear, with frightful vividness and distinctness, the moans and groans of the wounded and dying, the shrieks of captive women and their cries of anguish and horror."

There is so much difference of opinion among both physicians and lawyers upon the three subjects *homicidal impulse*, *moral insanity*, and *oinomania*, that we need offer neither apology nor further explanation for copying the subjoined extract from the report.

"In the foregoing Table (in the report) we see enumerated *four* cases in which were exhibited that terrible form of perversion of the affective faculties, having a *homicidal* tendency. In all of these instances, actual demonstrations were made fully indicating the morbid propensity. In *three* cases the attempt was directed at the life of the father, in one at that of the wife. They had mostly, for some time previous to the outbreak, been indifferent to passing events, and were sullen, morose, taciturn, and stupid. In all, the paroxysm was sudden, unexpected and unprovoked. They seemed actuated by a motiveless and uncontrollable impulse. These cases of motiveless homicidal insanity, are altogether the most frequent, and must be distinguished from those in which the intellectual powers are perverted, and the murder is perpetrated under some delusion. Esquirol, Gall, and other authors, cite abundant examples of each of these forms. This distinction, however demonstrable to the scientific inquirer, has been reluctantly admitted, and obstinately resisted in courts of justice. It is certainly a matter open, in its practical working, to abuses. Nevertheless, no fact is better established now than that this impulse to kill may exist independently of delusion, and yet be uncontrollable by its unhappy subject. We have had instances of persons who were themselves conscious of having this terrible propensity, and who voluntarily placed themselves under restraint, when they found the paroxysm approaching, to escape the commission of the dreadful act.

"In like manner, lawyers have refused to admit the existence of what Dr. Prichard called '*moral insanity*,' notwithstanding that every writer of authority has recognized and described this well marked morbid condition. We have ranked *nine* cases under this head. We all admit that the designation is open to serious objection, and some term better adapted to express the morbid state characterizing it might be adopted. The term '*moral insanity*' has been supposed to signify only an exaggerated state of the passions and propensities, rendering the individual incapable of guiding his actions and controlling his conduct. This has been looked upon so like an apology for crime on the part of physicians that lawyers have ignored it altogether, although this is but one of the forms of that variety of insanity which Dr. Prichard recognized as existing without any aberration of the intellectual faculties. There are, in fact, as many forms of moral insanity as there are feelings and passions. These may be in excess—that is to say, in a state of excitement—without disturbance of the purely intellectual part of our mental constitution. They may be also in abeyance, producing melancholy more or less intense, still without mental aberration. Excess or deficiency of the feelings and passions may, with as much propriety, be regarded as morbid, as excess or deficiency in any of the ordinary functions of the body would, without question, be referred to disease. The fact that a particular form of this malady does occasionally lead to the commission of crime, and is naturally urged in extenuation of it, has created

doubts of its existence as a disordered condition, and induced many to believe that it is simply a disregard of self-control, or a deliberate indulgence in vicious passions: but assuredly the frail nature of human reason predisposes all his faculties and functions to morbid action, and excess of joy or grief (both in themselves natural) are as much entitled to be considered disease, when characterized by irrational conduct, as any other departure from the healthy performance of the brain's functions.

"We have, likewise, no hesitation in comprehending *twenty-one* of the admissions the past year under the term, *Oinomania*. The existence of such a form of insanity is still far from being generally conceded. But when we see a person surrounded by every inducement to pursue the path of rectitude and sobriety, delivering himself up with fury to the abuse of stimulants, which no advice, no reproach, no prayers, no threats, no authority, no experience can correct or alleviate; who converts everything in his possession, his coat, his hat or boots, into brandy; who manifests that insensibility to truth, and rectitude, and self-respect, which is so frequently the characteristic of the confirmed inebriate, surely there must be, at the bottom of this moral debasement and degradation, a disease which but needs favourable circumstances to insure its complete and permanent relief. Such cases would assuredly justify legal interference. And it would not be very difficult to discriminate those instances in which legal restriction is necessary and justifiable from those in which it is not. In connection with the one distinguishing feature of the disease—continual craving for, and the excessive use of, intoxicating liquors—there is the other, viz: a total loss of self-respect and self-control in gratifying the desire. From this results an unfitness for performing the ordinary duties, and for fulfilling the obligations of life. In one class of cases it is characterized by wastefulness and extravagance; in another, by indecent or profane conduct; in another, by theft; in another, by vindictiveness; in another, by a tendency to impulsive violence, which may lead to the commission of murder or suicide; and in all by extreme subtlety and deceitfulness. Such afford unmistakable features, when more or less combined, to guide us in our decisions."

5. From the report of the trustees, which accompanies the report of the superintendent of the *Central Ohio Lunatic Asylum*, it appears that, in the course of the last six years, many and important improvements have been made in the buildings and upon the grounds of that institution.

	Men.	Women.	Total.
Patients in the asylum, November 1, 1860	123	129	252
Admitted in the course of the year	93	76	169
Whole number	216	205	421
Discharged, including deaths	84	85	169
Remaining, November 1, 1861	132	120	252
Of those discharged, there were cured	54	53	107
Died	8	7	15

The causes of death, for the year, are not specially stated.

Through an application from Gov. Pierpont, of Western Virginia, to Gov. Dennison, of Ohio, four patients from the territory under the jurisdiction of the former have been received at this institution. "The western part of Virginia being cut off from the privileges at Staunton and Williamsburg, made this unusual step one of almost necessity, and fully sanctioned in the light of humanity and patriotism."

In regard to the influence of political commotion, Dr. Hills remarks that it "has apparently added a few to our numbers, yet the absorbing interest taken by many in the passing events, has been of decided benefit to them, by the diversion of mind from otherwise overpowering delusions."

A large part of the report is occupied by the statistics of the asylum for the twenty-three years during which it has been in operation. We copy some of the most important of them.

third, also a daughter, is an idiot, now mature in years. The fourth died when young, with 'fits.'

"Four children born previous to the period of intemperance, and two since reformation, are all sound and healthy."

We infer, from the language of the report, that two buildings for gymnastic exercises, one for either sex, have recently been constructed.

"Weekly lectures, with magic-lantern, or other means of illustration, will be immediately resumed for the winter." Dancing parties are given "not oftener than once a week;" and it is designed to have "a weekly musical entertainment, instrumental and vocal."

6. The unusually brief report of Dr. McIlhenny, of the *Southern Ohio Lunatic Asylum*, contains but very little matter of professional interest.

	Men.	Women.	Total.
Patients in the asylum Nov. 1st, 1860	82	75	157
Admitted in the course of the year	45	54	99
Whole number	127	129	256
Discharged, including deaths	49	48	97
Remaining Nov. 1st, 1861	78	81	159
Of the discharged, there were cured	30	29	59
Died	5	3	8

The asylum became so much crowded with patients, that it was found necessary to discharge some of the incurables in order to make room for curables.

"An omnibus, for the purpose of which an appropriation was made at the last session of the legislature, has been procured, and will be quite an addition to the other means of amusing and exercising the patients."

"The grounds are now finished, so far as grading and the construction of roads are concerned. We have planted, the past season, quite a number of trees, and considerable has been done towards improving and beautifying the surroundings."

7. The most important tabular medical records of the *Kentucky Eastern Lunatic Asylum*, for the year terminating with the close of September, 1861, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	134	98	232
Admitted in the course of the year	29	19	48
Whole number	163	117	280
Discharged, including deaths	26	17	43
Remaining at the end of the year	137	100	237
Of the discharged, there were cured	9	8	17
Died	11	7	18

Died of phthisis, 6; exhaustion, 3; general paralysis, 3; dropsy, 2; marasmus, 2; apoplexy, 1; disease of the heart, 1.

But one of the patients who died had been insane less than three years. The average age of all who died was 41.23 years.

"Every day's experience," says Dr. Chipley, "strengthens and confirms the opinion I have heretofore expressed, that moderate, well-regulated labour is one of the most important features in the discipline which should govern the insane. It is curative with the more fortunate class, palliative with all. It dispels ennui, promotes physical vigour, improves the appetite and digestion, secures sound sleep, breaks the chain of morbid thought, wins the mind from its erratic wanderings, or elevates it from the melancholy gloom which idleness almost surely deepens. In any aspect in which it can be viewed, it would be difficult to over-estimate the importance of labour."

The number of patients in the asylum is greater than can be properly accommodated, and admission has been refused to more than one hundred applicants. The report contains an urgent appeal for an enlargement of the building.

A kitchen, bakery, &c., have been recently erected, and now no fires are kept in the hospital proper, so that it is "almost absolutely fire-proof."

The report is accompanied by a large topographical map of the grounds belonging to the institution.

8. The *Michigan Asylum for the Insane*, although but "three divisions of the south wing" were at that time completed, was opened for female patients on the 29th of August, 1859. On the 13th of March, 1860, the first male patient was received. The records of the institution from the dates above-mentioned to the 30th of November, 1860, furnish the following results.

	Men.	Women.	Total.
Patients admitted	57	84	141
Discharged, including deaths	10	22	32
Remaining	47	62	109
Of the discharged, there were cured	6	14	20
Died	2	1	3

In allusion to the assigned causes of mental disorder in the patients who had been admitted, Dr. Van Deusen says:—

"The most notable feature is the great prominence which 'ill-health' has assumed, as a cause of insanity. Aside from these cases, a large proportion of those admitted were more or less seriously diseased physically, when received, and nearly all required immediate attention to some bodily ailment. In this respect the personal appearance of the patients presented for treatment at this institution, has been in striking contrast with our experience elsewhere. The extent to which malarial influence, in many instances, had operated, either directly as a cause of mental alienation, or indirectly by inducing a general cachexia, is a most troublesome complication, especially during convalescence. In perhaps no class of cases in which insanity has a directly physical origin, can the connection between cause and effect be so easily traced and recognized as in these."

In regard to the utility of manual labour, he says:—

"During convalescence, in very many cases it becomes highly curative; and to the comfort and health of a large majority of the incurable, it is absolutely essential. There are now in the institution two men who were described to us on their admission, as being fierce as 'wild beasts.' They had for years been unaccustomed to clothing, and so violent and destructive as to require constant confinement in a cell. At present both work out almost daily, and exhibit no special uneasiness, except when occupied and confined to the building."

Dr. Van Deusen's report is well adapted to those who will mostly be its readers—the people of a State within the borders of which no establishment for the insane has heretofore existed; but to the readers of this Journal, who, for the last score of years have plodded—or, at least, have had an opportunity to plod—through the reports of kindred institutions, it presents, as must be expected, but little of novelty.

9. From Dr. Rockwell's brief report of the *Vermont Asylum for the Insane*, for the fiscal year terminating with the close of July, 1861, we make such extracts as are the most important in a professional or historical point of view.

	Men.	Women.	Total.
Patients at the beginning of the year	217	219	436
Admitted in course of the year	83	57	140
Whole number	300	276	576
Discharged, including deaths	70	68	138
Remaining at the end of the year	230	208	438
Of the discharged, there were cured			56
Died			32

Since the opening of the asylum 3308 have been admitted, 2870 have been discharged, and 438 now remain. Of the 2870 discharged, 1547 have recovered.

"For several years the buildings have been so crowded, that we have experienced the want of additional room to furnish all the accommodations necessary for the comfort and restoration of the inmates. By the enlargements which have been made this year, in the addition of nearly one hundred rooms, we can furnish suitable apartments for all the patients, and our means of classification and facilities for cure have been greatly increased.

"Insanity, like other diseases, requires early treatment, in order to insure success. Though this fact is more generally understood than formerly, still there is frequently an unfortunate delay in placing the patient in the most favourable situation for recovery. It is hoped that no friend of the insane, through mistaken kindness, or false pride or prejudice, or any other inexcusable reason, will keep the patient at home after the insanity is fully developed, but unhesitatingly place him in an institution adapted for his restoration.

"Among the causes which tend to produce this afflicting malady, intemperance has long been known to be one of the most prolific. Its effects are not confined to that form of insanity, familiarly known as delirium tremens. In noticing the causes of insanity, many cases are attributed to 'loss of property,' 'domestic affliction,' 'ill-health,' and similar causes, all of which are frequently produced by intemperance. Insanity and death are both more liable to be produced at the present time by intemperance than formerly. The recent developments of the poisonous adulteration of alcoholic stimulants, should be sufficient to deter every one from the use of all, excepting as unavoidable medicines, and then the purest liquors only should be used."

10. In the report of the *Maine Insane Hospital*, for the year ending November 30th, 1861, the records which we are accustomed to transfer to our columns are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	131	109	240
Admitted in course of the year	77	58	135
Whole number	208	167	375
Discharged, including deaths	74	49	123
Remaining at the end of the year	134 ¹	118 ¹	252
Of the discharged, there were cured	32	23	55
Died	15	12	27

The immediate causes of death were, phthisis pulmonalis, 5; dropsy, 4; *paralysie générale*, 3; diarrhœa, 3; exhaustive mania, 3; congestion of the lungs, 2; erysipelas, 2; apoplexy, 3; epilepsy, 1; inflammation of the bowels, 1.

The subjoined extract is taken from Dr. Harlow's remarks upon sympathetic disorder of the cerebral functions.

"Of the various organs which enter into the arrangement for digestion, no one, if we except the stomach, sympathizes more directly with the brain than the liver. The secretions of this great emunctory play a wonderful part in the movements of the grand mental machinery. Every one knows how changeable are the moods of mind—now buoyant and cheerful, with scarcely a ripple to mar the peaceful and happy flow of spirits; now grave and sad, with no pleasing or agreeable thoughts; now full of hope and joy; now fear and apprehension fill the mind with evils of the darkest hue, and often plunge us into the vortex of despair. These, and various other mental moods, I believe, depend in no inconsiderable degree upon the condition of the biliary secretion operating upon the brain, either through the circulation or the sympathetic nerves, or the two combined. All medical men who are at all conversant with the inmates of a lunatic asylum, cannot fail to observe that a very large class of these persons suffer from an abnormal condition of this organ. It is distinctly seen in the class of cases termed melancholiacs or lypemaniacs. Great sympathy is also felt in the brain, when any other of the large organs of the body become diseased. It is very common to find insane persons suffering from phthisis pulmonalis, or other

¹ The report says 133 and 119, but such is not the deduction from the preceding numbers.

pulmonary affections, which evidently has much to do in producing and keeping up the mental derangement. It is not unfrequent to find organic disease of the heart accompanying insanity, and acting as its cause. The effect of disease in either of these great vital organs must be obvious. Depuration of the blood, so essential to a healthy action of the great mental organ, cannot go on perfectly when the functions of the heart and lungs are impaired or obstructed."

The asylum has for several years been fully occupied by patients, and admission has been refused to many applicants, even, in some instances, when they "had arrived at the door."

In the course of the past year the method of heating the buildings has been changed from hot water to steam; and an apparatus for forced ventilation, with a centrifugal fan, twelve feet in diameter, has been introduced. P. E.

ART. XVII.—*Report to the Secretary of War of the Operations of the Sanitary Commission, and upon the Sanitary Condition of the Volunteer Army, its Medical Staff, Hospitals, and Hospital Supplies.* December, 1861. 8vo. pp. 107.

Rules for Preserving the Health of the Soldier. Second Edition, July, 1861. 8vo. pp. 12.

Report of a Committee Appointed by the Sanitary Commission to Prepare a Paper on the Value of Vaccination in Armies. December, 1861. 8vo. pp. 32.

Report of a Committee Appointed by Resolution of the Sanitary Commission to Prepare a Paper on the Use of Quinine as a Prophylactic against Malarious Diseases. 1861. 8vo. pp. 21.

Report of a Committee of the Associate Medical Members of the Sanitary Commission on the Subject of Continued Fevers. December 6, 1861. 8vo. pp. 23.

Report of a Committee of the Associate Members of the Sanitary Commission on Dysentery. February, 1862. 8vo. pp. 40.

THE efficiency of an army will depend almost, if not altogether, as much upon the physical vigour, the health and robustness of the men who compose it, as upon the excellency of their discipline, and the efficiency of their officers, considered in a simply military point of view. Consequently, unremitting attention to the proper hygiene of the camp and garrison becomes as important and necessary a measure as is attention to any of the means universally admitted as essential to fit soldiers for the field, and to insure the success of their combined operations, whether in aggressive or defensive warfare.

In a merely economical light the subject of military hygiene presses itself upon the attention of every government with peculiar force. Its object is to economize the health and life, the vigour and endurance of the soldiery. It must be evident that an army, the most numerous and best appointed, may be as effectually crippled by disease as by the arms of an enemy. History shows to us more than one instance where this actually occurred. Independently of the destruction of life, produced by sickness, the sick themselves are an actual loss from out the ranks of an army, and a very serious encumbrance in all its movements. To supply the deficiency in the personnel of an army thus caused—to maintain the army at its requisite strength—involves a very heavy amount of expenditure; consequently, such means as are adapted to preserve and improve the health, and secure the lives of the soldiers, must necessarily reduce the expenditure incident to invaliding such as have become incapacitated from military service, and of recruiting and drilling new men to supply the vacancies, in the ranks of the army, resulting from sickness and death. "Fewer men would be required, and recruits would more readily join a healthy army. The existence of an army in the highest state of efficiency would give additional security to the country without increasing the cost; the liability to an attack would be lessened; war would be waged with more chances of success, and would sooner be brought

to a close by such an army than by an army suffering from the diseases which have hitherto infested the barrack and the camp."

The facts which have been verified and accumulated by accurate observers among the military surgeons of Europe, and, to some extent, by those of our own country also, prove, most incontestably, that the sickness of soldiers in the field may be reduced "by carefully selecting men; by letting the men, when it is practicable, breathe purer air; by selecting the healthiest sites available for camps; by raising the men in their tents from the ground; by supplying them with purer water; by better medical arrangements."

From all the observations that have been heretofore made, it becomes evident, to use the words of the commission, that the duty of guarding against the defeat of our armies by disease, needs to be undertaken as earnestly, as vigilantly, with as liberal a policy, and with as resolute a determination, as any other military duty. This duty, unfortunately, does not constitute any prominent part of our present system of military medicine; it scarcely, indeed, enters into it. The medical staff of the army are charged with the cure of disease. The prevention of disease—an equally if not more important office of the physician—forms at best but a very subordinate branch of the duties imposed upon the military physician.

To supply to some extent the defects at present existing in the department of military hygiene; defects which, it was to be expected, would be felt to their fullest extent throughout the encampments and garrisons of an immense army, such as that which the United States has been compelled, during the past twelve months, to extemporize, by calling to its ranks, from the peaceful pursuits of civil life, men unaccustomed to, and, including both privates and officers, to a great extent ignorant of, and perhaps altogether indifferent to those precautions which are necessary to insure the health and well being generally of the human frame amid the injurious causes to which, in camp and garrison, it has been suddenly subjected; to guard, as far as possible, against the disastrous consequences it was feared would result from these defects, a commission was appointed, or, perhaps, to speak more correctly, recognized by the late Secretary of War, with instructions to inquire into the sanitary condition of the army of the United States, and present such advice, in respect to its improvement, as the inquiries instituted by the commission should discover to be necessary.

The organization of this commission has given rise to some discussion; with this, however, we have nothing to do. Its objects are "to inquire into the principles and practices connected with the inspection of recruits and enlisted men; the sanitary condition of the volunteers; the means of preserving and restoring the health, and of securing the general comfort and efficiency of troops; the proper provision of cooks, nurses, and hospitals; and other subjects of like nature." These objects are, unquestionably, of the highest importance, and, if successfully carried out, cannot fail to be productive of a saving of health and life in the personnel of the army, calculated to increase its efficiency, and keep up its requisite strength, without the necessity of repeated drafts upon our State volunteers.

Judging of its operations, from the several reports made by the commission since its organization, we are persuaded that its action, thus far, has been eminently wise and judicious. The great defect is that the commission has not the requisite power to cause to be carried out promptly and effectually, the several reforms it has discovered to be necessary in order to place the condition of the army, in a sanitary point of view, upon as favourable a footing as was desirable, and that too in cases where delay was liable to be attended by the most disastrous results. As the commission remark—"The object had in view by it can be effectually accomplished only by the direct action of government—through officers who can order where the commission can only advise. The cause our armies have to defend is alone dearer to the people than are those who have to suffer in its defence. The strength and mobility of the army cannot be sacrificed to the care of its sick and wounded. The sick and wounded should be sacrificed unflinchingly to every unavoidable military necessity; but all the more should they be supplied with whatever mitigation of suffering military necessities leave possible. And these should be furnished them—not as if a hard master were

driving a bargain with them—as in the commutation of a board contract—but as if the love and pity of mothers, wives, sweethearts, and sisters, were exercised with the far-seeing providence, boldness, ingenuity, tact, and industry of true military generalship—Surgeon-Generalship.”

From the general report of the commission we extract the following highly interesting remarks on the mortality, diseases, and casualties of the army up to the close of the past year:—

“In the army of the Potomac the average constant number of sick per *thousand* men has been *sixty-three*; in the department of Western Virginia, *one hundred and sixty-two*; in the valley of the Mississippi, *one hundred and sixteen*. The average constant number of sick during the months of August, September, and October, in the regiments east and west, so far as visited, has been *seventy-seven* per thousand. In this number, all relieved from duty, from any sort of physical indisposition, however slight, are included. At this rate, in order to secure a constantly active force of 300,000, the nation must maintain in the field an army of about 325,000.

“The number of sick varies in different regiments from *one-third of one* per cent. to *forty-nine* per cent. The average length of time lost from active duty, in each case of sickness reported, has been a little more than *five* days.

“The health of the volunteers of the army of the Potomac has been slightly better than that indicated by the returns respecting the health of the regular army during the past year. The average health of the entire volunteer force in the field has been inferior to that of the regulars.

“There is reason to think that the most sickness has occurred where regiments, raised in far northern and highland districts, have been removed to lowland, fluvial, and seaboard districts; those, for instance, from Maine and Vermont, the ridge counties of New York, and from Minnesota, being more subject to distinct disease, as well as to demoralization, or ill-defined nostalgia, than others in the army of the Potomac. The healthiest regiments, physically and morally, have been those from the seaboard, as of New Hampshire, Massachusetts, Rhode Island, Connecticut, and New Jersey; those from Rhode Island being probably the most fortunate in this respect, which fact, however, is chiefly due to their superior discipline early in the campaign.

“It is difficult to compare the rate of sickness of foreign armies with that of the volunteers, because it is uncertain what degree of sickness in them places a man upon the sick list. Our volunteer surgeons are, undoubtedly, very accommodating in this respect, probably more so than the surgeons of the regular army, or of foreign armies. It has happened in more than one instance that, upon an order to advance against the enemy being given, every man of a regiment, then on the sick list, immediately reported himself well, was discharged, and shouldered his musket in the line of battle. It is probable that at least one-half those returned as sick, by the surgeons of volunteers, would do the same under similar circumstances, that proportion being excused from duty on account of a cold in the head, severe fatigue, or a slight indigestion.

“In the whole British army, in time of peace, 6.5 per cent. of the force, otherwise available, is reported constantly ‘in hospital.’ Of the British army in the Peninsula, under the Duke of Wellington, 1808-1814, 21 per cent., or 9,300 of an average force of 44,500 men, was constantly ‘sick in hospital.’ The number of sick ranged from 9 to 33 per cent. of the whole force at different periods. These rates were exceeded in the British army of the Crimea. To maintain 100 effective soldiers in the field, it there became necessary to provide for 26.6 sick men. The annual rate of mortality was 3 per cent. by wounds, and 20 per cent. by disease. The annual rate of mortality in the British army, at home and in time of peace, was from 1.1 to 2 per cent. in the ten years preceding 1847.

“The average mortality of the army of the Potomac has been, during the summer, at the rate of $3\frac{1}{2}$ per cent., allowance being made for those who die after their discharge, from causes connected with army life. Imperfect data, received from the West, indicate a considerably larger rate for the whole army; probably it will not be far from 5 per cent., if sweeping epidemics should be escaped.”

“The following statement exhibits a classification of the cases of disease, in

the volunteer army, during a portion of the campaign: showing, also, the percentage of casualties of all kinds—wounds, accidents, &c.—for the same period, compared with like returns from the army of the Crimea, from April 10, 1854, to June 30, 1856:—

	Army of the Potomac.	Army of the West.	Army of the Crimea.
"Zymotic diseases, per cent.	61.1	76.4	69.8
Constitutional	1.2	.6	.5
Local	30.7	17.3	15.6
Developmental	3.4	3.5	.1
Violence	3.6	2.2	14.0
All cases	100.0	100.0	100.0

"Two most important facts appear on the face of this table: First, the immense disproportion between cases of disease and of violence, fully justifying all that has been asserted as to the loss an army in the field must expect to sustain from these causes respectively, and, secondly, the great excess of zymotic diseases, nearly all of which are, in greater or less degree, preventible by proper precautions. For instance, typhus can be almost certainly averted by systematic attention to cleanliness and ventilation, smallpox by vaccination, and malarious diseases—intermittent fever, &c.—by quinine. It seems apparent, therefore, that it is within the power of government, either by the action of the War Department, or by legislation, to enforce rules that will most materially diminish the waste of efficiency by disease, and the consequent cost of the present war."

We are unable to command the space we should be obliged to occupy were we to attempt a separate notice of the several reports which have been made at the instigation of the Sanitary Commission, by committees of its own members, in conjunction with physicians and others, whose advice and co-operation it has solicited in the accomplishment of the leading objects of its appointment.

The reports to which we refer, and the titles of several of which have been placed at the head of the present notice, are confessedly productions of much merit. More than one of them are on subjects having a vital bearing upon the efficiency and economy of the military forces of our country, which are now, or may hereafter be called into the field. In respect to such of the reports as present what are described by the Commission as "brief essays or hand-books embodying in a condensed form the conclusions of the highest medical authorities, in regard to those medical and surgical questions which are likely to present themselves to surgeons in the field in the largest scale, and which, therefore, are of chief practical importance," we should be mortified in believing there was any actual necessity for their preparation. No one surely should receive the appointment of the responsible position of surgeon in any department of the army who is not perfectly familiar with the actual state of knowledge in respect to every question, whether medical or surgical, that is liable to present itself in the execution of his professional duties. The government had within its reach plenty of the proper material from which to select for the army a well-instructed and efficient medical staff. A staff, no member of which would stand in need, even in the absence of standard works of reference—of the "manuals prepared under the authority of the Sanitary Committee"—excellent as these unquestionably are—to furnish the necessary information or instruction, to enable him to minister, as a physician, with judgment and success to such of the soldiery as may be confined by sickness to the hospital, or as a surgeon, to relieve the sufferings, and save the limbs and lives of those who may be among the wounded on the field of battle. Had the talents and the labour required for the preparation of the reports in question, been employed in the preparation of suitable essays in reference to almost any of the leading questions connected with the sanitary management of the troops, amid the varying circumstances they are liable to be placed, we believe a far more desirable work would have been accomplished—an actually existing want among the surgeons and other officers of our army supplied, and consequently a more certain amount of good produced.

It is a lamentable fact that the importance of hygienic measures is too often

undervalued, and these measures, in consequence, neglected, from an ignorance on the part of otherwise well instructed medical men of the results of accumulated and carefully collated evidence in respect to the true nature, the proper bearing, and positive efficacy of a well arranged and well executed hygienic police. By the non-medical officers of the army sanitary principles of the most positive character are constantly practically ignored.

The report on the Value of Vaccination, in Armies, is one of a most interesting and important character. From the facts adduced by the Committee the following conclusions are arrived at—the correctness of which is fully sustained by an overwhelming weight of evidence.

1. Primary vaccination is a positive protection, within certain limits, against smallpox. 2. There is a period of life when that influence declines; and the history of epidemics teaches that smallpox will attack a variable portion of the vaccinated if exposed to its influence. 3. The mere *possibility* of such a decline renders re-protection necessary. 4. In revaccination we have an almost infallible restorer of that protection, and a preventive of the spread of variolous epidemics. Hence, revaccination in all bodies exposed to variolous contagion is *imperatively* demanded. 5. The operations of vaccination and revaccination are unattended with danger to those subjected to them.

We would join our voice to that of the committee on vaccination, in pressing upon the Sanitary Commission the necessity of making such representation to the proper authorities, as will secure the revaccination of all soldiers who cannot prove its performance upon them within the previous five years, and such arrangements as will place within the reach of the medical officers of the army a constant supply of genuine and efficient vaccine virus.

The report on the use of quinine as a prophylactic against malarious disease, is one replete with interest. The facts bearing upon the subject within the reach of the committee have been carefully collected and arranged by it. From these may be fairly drawn, it is believed, the conclusion, that the power of quinine as a preventive of miasmatic diseases is to be recognized as an established medical fact; and that the article may be employed, not only with entire safety, but with the greatest advantage, even to the saving of life, by healthy persons exposed to malarial influences.

In order, as the committee state, to estimate fully the value of the prophylactic or preventive property of quinine, which is styled by a recent English writer "a modern discovery," it will be useful to rehearse a few well established medical facts.

"a. Individuals undoubtedly differ in degree of susceptibility, or in their liability to be attacked by miasmatic disease; but there is no amount of natural vigor of constitution, or positive high health, which will confer immunity against the effects of the poison.

"b. The young are usually more liable to the disease than those of mature age.

"c. Poisoning from malaria is more liable to take place between the hours of sunset and sunrise, and in those who are fasting, fatigued, or deprived of sleep.

"d. After exposure to malaria the attack of disease is not necessarily immediate; a period of *incubation*, varying from six to twenty days, usually intervenes, and during this the individual may enjoy perfect health. The attack, when it occurs, may assume the form of intermittent or remittent fever, or any of the other forms of miasmatic disease, varying in nature and degree of intensity, according to the impressibility of the individual, and the virulence of the poison; or, the amount of poison imbibed may not have been sufficient to cause an explosion of purely miasmatic disease, but only enough to impress the miasmatic or paroxysmal type upon some intercurrent malady occasioned by another cause.

"e. After long exposure to malaria, even though no actual attack of sickness may have occurred, a debilitated condition of health is liable to arise, characterized by sallow complexion, diminished strength, and impoverished blood; this is known as *malarial cachexia*.

"Now, it is a well established fact in the experience of American physicians, that the daily use of a small quantity of quinine, say from three to six grains,

in one or more doses, by those who are exposed to the danger of malarial poisoning, will, in most instances, prevent an attack of malarial disease; and that it will always render the disease milder, if it should occur. It will also prevent the development of malarial cachexy." D. F. C.

ART. XVIII.—*Extracts from the Records of the Boston Society for Medical Improvement, with Papers read before the Society.* By FRANCIS MINOT, M.D., Secretary of the Society. Vol. IV. No. 4. (Pamphlet) 8vo. pp. 179—264. Boston, 1862.

ABUNDANT evidence is afforded, in this modest pamphlet, of the activity of our brethren in Boston during the past year. We have only room for a brief mention of some of the more important cases and papers contained in it; premising that we have seldom seen an equal amount of material of more uniform interest and value.

Several instances of cancerous disease of the alimentary canal, at various portions of its extent, are reported; in one, a free communication was established, through the adventitious mass, between the transverse and descending colon. Dr. Jackson relates a case of rupture of the Fallopian tube in a non-pregnant woman, and Dr. Gay one of retro-uterine hæmatocele—a very rare affection in this country. Another singular case is detailed, in which a multilocular cyst was developed from the fundus uteri. A case of bronzing of the skin, connected with enlargement and disease of the supra-renal capsules, is added to those already on record. Three instances of death from softening of the muscular tissue of the heart, without perforation, are reported; in one of them the subject was a man only twenty-nine years of age.

The secretary has very properly grouped together the records of several discussions and reports relating to diphtheria, a topic which must interest every practitioner of medicine of the present day. A case is alluded to here, and more fully detailed in the Appendix, in which a young physician of high standing was cut off by this disease, contracted apparently from a patient; many of our readers will be reminded by it of the very similar fate of Dr. Frick, of Baltimore, a year or two since.

The experience of the members of the Boston Society in regard to the use of ether in puerperal convulsions, seems, on the whole, to have been favourable. An interesting paper, headed "Report of a Committee on the alleged dangers which accompany the Inhalation of the Vapour of Sulphuric Ether," in the Appendix, deserves attention. Dr. Bowditch brought before the Society, in July last, a new anæsthetic agent, called *kerosolene*, represented as cheaper and safer than sulphuric ether; it was referred to a committee to be experimented with.

Several interesting observations in the pathology of the lower animals, mainly of calculi and tumours, are to be found in these records. Dr. John Bacon has a valuable paper in the Appendix, upon Siliceous Urinary Calculi, which are extremely rare in the human subject, but not uncommon in the herbivora.

J. H. P.

ART. XIX.—*The Excision of Joints.* By RICHARD M. HODGES, M. D. Boston, 1861. 8vo. pp. 204.

THE monograph before us was successful in obtaining the Boylston Prize of 1861, as the best treatise offered to the Committee, on the subject of excision of the joints. It comes to us, therefore, bearing already a mark of value.

There are few subjects in surgery of equal interest, at the present day, as those

of excision of the joints, and resection of portions of the long bones. Not many years ago it seemed to be the main object of surgeons to invent and practice brilliant methods of operating. At the present time their efforts are plainly directed to the less showy, but more humane undertaking of inventing methods of treatment capable of repairing and preserving diseased and injured parts.

Since the publication of the work of Mr. Syme, printed in 1831, no monograph has appeared in the English language on the subject of Excisions. Since then, a great number of individual cases have been reported, with more or less detail, in which the operation has been performed. Several treatises on the excisions of individual joints have been published, and, what is more, the valuable essays of Wagner, Heyfelder, Esmarch, and other European surgeons, have made their appearance.

In our own country, excisions of the joints have been comparatively little practised, and no one American surgeon has had much personal experience in regard to them. A chapter on Excision of the Bones and Joints, in the *System of Surgery*, by Dr. Gross, has been, until the appearance of this treatise by Dr. Hodges, the only important contribution on this interesting subject, written by any of our own surgeons.

The contents of the work before us are divided into three parts; excisions in general; excisions of the upper extremity; and excisions of the lower. The first part treats in distinct sections of excisions historically considered, their adaptation to cases; their comparative value in respect to amputations; their adaptation to the two extremities, and their results. In the second part, the excision of each joint of the upper extremity is considered separately, and in sections entitled, history of, excision for injury, excision for disease, operation, and after-treatment, dissections after, and conclusions in regard to; in the third part, the excision of each joint of the lower extremity is considered in the same way. An extensive bibliography and a very complete index are attached to the work.

This treatise gives evidence, in every portion, of well-directed industry and sound judgment. The latter quality is particularly displayed in the various sections containing the *conclusions* in regard to the resections of the respective joints. Every one of these conclusions meets with our hearty approval.

The most original part of the treatise is the extensive statistical tables of the results of excision of the various joints. These tables are exceedingly useful in enabling us to form a judgment as to the safety or danger of excision, as compared to amputation; as to which exposes life to least danger, and which secures the most useful limb.

The disadvantages to be urged against excision are: That it is more dangerous than amputation; that a much longer time is necessary for the cure; that the limb will probably be nothing better than an incumbrance, that it is exceedingly difficult to select the proper cases, and that the operation is a more difficult one than that of amputation.

The first three of these objections can only be decisively settled by statistics, and it is just here that the treatise of Dr. Hodges will be found to have its peculiar value.

As to the other objections to excision, the last mentioned should not influence the surgeon, and the fourth, or the difficulty of selecting the proper cases, is one that the work of Barwell,¹ recently reviewed in this Journal, enables us to solve, with tolerable accuracy, far more completely, at all events, than anything that has ever before been published on this subject.

We must therefore give a hearty welcome to this publication of Dr. Hodges. For reasons just mentioned, it has a particular value of its own, and, together with the admirable work of Barwell, it should be in the hands of every one interested in the proper treatment of diseased joints—cases as difficult to manage as any that fall under the surgeon's care.

W. F. A.

¹ A Treatise on Diseases of the Joints, by Richard Barwell, F. R. C. S. Phil. 1861.

ART. XX.—*On Bandaging, and other Operations of Minor Surgery.* By F. W. SARGENT, M. D., etc. New edition, with an additional chapter on Military Surgery, by W. F. ATLEE, M. D., and one hundred and eighty-seven illustrations. 12mo. pp. 383. Philadelphia: Blanchard & Lea, 1862.

THIS excellent little manual has so long possessed the favour of the medical public, that it needs no commendation at the present time. Of the chapter added by Dr. Atlee, on gunshot wounds and some other points in army surgical practice, we can only say that it is an admirable compendium of the latest and most authoritative opinions in regard to these matters, and will be found valuable as an index of the views of the best modern writers. As a whole, this little work will be found of great use by members of the medical staffs of the army and navy, and especially by such as have lately entered the service.

There is one point upon which we are tempted here to make a remark; namely, the general misuse as we conceive of the phrase "conservative surgery." On p. 372. Dr. Atlee says: "In the recent campaign in Italy, Longmore states that in the lower extremity the practice of conservative surgery was almost entirely abandoned." We hold that surgery wages a war sometimes offensive, sometimes defensive; offensive when a tumour or deformity, for instance, interferes with a patient's comfort or convenience, or renders him unsightly—defensive when the life of the whole body is threatened by a disease or an injury. It is the surgery which, in this latter case, brings the patient off with the least possible loss, which saves the limb if it can be saved, but wisely sacrifices the less for the greater when prudence indicates such a course—to which we would like to see the term "conservative surgery" applied, and we hope that it is in this sense that the phrase will be hereafter used.

J. H. P.

ART. XXI.—*Observations upon Puerperal Insanity.* By RICHARD GUNDRY, M. D., Assistant Physician to the Southern Ohio Lunatic Asylum. 8vo. 30 pp. Utica, N. Y., 1860.

THESE observations, which appeared originally in the *American Journal of Insanity*, are chiefly valuable from the well arranged statistics embraced by them in illustration of some of the more important facts connected with the etiology and character of puerperal insanity, as it usually presents itself during gestation, subsequent to parturition, or at a later stage during lactation.

The observations of Dr. Grundy are based, it is true, upon only a limited number of cases of the disease in question. They furnish, nevertheless, a valuable contribution to the general fund of knowledge in respect to a malady, which from its frequency, the class of persons who are its subjects, and the particular circumstances under which it occurs, presents especial claims upon the attention of every practitioner. The comparison of the observations before us with those which have been furnished from other sources is adapted to lead to useful results, and to throw additional light upon some of the characteristic features of a form of disease which has heretofore been studied less closely and diligently than its importance demands.

The observations before us embrace the analysis of fifty-six cases of puerperal insanity.

The first point considered is the age at which the disease first appeared. The table furnished by Dr. G. shows that the number of attacks in the 56 cases was much larger in women between 20 and 35 years than at any other period. Thus 18 cases were in patients between 20 and 25 years of age; 11 cases in those between 25 and 30; 13 cases in those between 30 and 35 years, making a total of 42, or $\frac{3}{4}$ of the entire series of cases. Dr. G. remarks that such a result might have been expected, so far, at least, as relates to the number of puerperal

maniacs of the age of 20 years and from thence to 25 years, inasmuch as the proportion of females of this age in the United States greatly exceeds that of any other age over 20 years. Many of the cases, however, were not first attacks. The age at which the disease was actually developed was as follows: between 20 and 25 years in 9 cases; between 25 and 30 years in 15 cases; between 30 and 35 years in 16 cases; between 35 and 40 years in 11 cases; between 40 and 45 years in 3 cases; and between 45 and 50 years in 2 cases.

The number of attacks suffered by the 56 patients who furnish the observations before us were as follows: by 37, only one attack; by 10, two; by 4, three; by 4, four attacks. In one case the exact number of attacks could not be ascertained. It was only known that she had had several, the first of which occurred before her 25th year, and the last in her 32d year. From all the attacks she entirely recovered. We have then, 85 different attacks of insanity occurring in 55 patients, of which more than one-half (46) occurred in those between 25 and 30 years of age.

The influence of occupation in predisposing to an attack of puerperal insanity was not evinced in the series of cases before us. They do not show that the female whose life is passed in luxurious ease, notwithstanding the supposed tendency of such a life to augment nervous susceptibility, was any more predisposed to the disease than she whose lot was one of poverty—the influence of which is generally considered unfavourable to the development of the nervous temperament.

In respect to the civic condition of the patients, 54 were married, and *two* unmarried.

The question whether a hereditary predisposition to insanity generally produces a tendency to the occurrence of insanity during the puerperal state, is one upon which it was found very difficult to throw any satisfactory light. In the absence of precise information, Dr. G. has included in his estimate the instances in which collateral relatives were known to have exhibited evidence of insanity as leading to the suspicion of a taint in the common ancestors. Thus proceeding, he found 22 out of the series of 56 cases, or *two* in every *five* were suspected or known to have been predisposed to mental disturbance in consequence of hereditary taint.

How far any circumstances of an unusual and disturbing character occurring to the patient about the period of attack are to be viewed as predisposing or exciting causes of the attack of puerperal insanity, it is very difficult to determine. According to Dr. G. such occurrence would appear rather to concur with the existing puerperal condition "in precipitating an attack than in originating it. At any rate they materially increase the difficulties to be surmounted before health is attained by those with proclivities to mental disturbance."

In the 56 cases analyzed by Dr. G. there were in 30 no unusual circumstances detected. Of the remaining 26 cases, *twelve* had been the subjects of more or less intense mental emotion brought on by the loss of a child previous to the last confinement, by grief, family difficulties, the drunkenness or other misconduct of the husband, etc.; *two* of the patients were miserably situated during confinement; *three* gave birth to illegitimate children; and *one* of a still-born child; *three* laboured under inflammation of the uterus; *one* under leucorrhœa; *one* under abscess of mamma; *one* under chorea; *one* under repelled papular eruption; and *one* under repelled ulcer.

In respect to the influence exercised by the character, danger, and complication of the labour in the production of puerperal insanity, we learn from the tables before us that of 53 of the patients (three being unknown) the attack in 10 cases was after a *first* labour; in 3 after a *first, second, and third*; in 1 after a *first and third*; in 3 after a *first, second, third, and fourth*; in 8 after a *second*; in 1 after a *second and third*; in 9 after a *third*; in 1 after a *third and fourth*; in 6 after a *fourth*; in 3 after a *fifth*; in 1 after a *fifth, sixth, seventh, and eighth*; in 7 after a *second* labour; in 1 after every labour; and in 4 after having borne several children. Thus, only 18 or 1 in 2.94 were primiparæ, while of these, 7 had a repetition of the attack at every succeeding confinement, showing that when insanity has once occurred as an incident of the puerperal condition, it has a strong tendency to recur whenever subsequently that condition

returns. In only one case did it slip over one confinement after its first occurrence, and reappear at the next confinement.

The nature of the labour, whether difficult and tedious, or attended with flooding or with eclampsia, would seem, so far as we can judge from the statistics before us, to exert but little, if any influence upon the production of puerperal insanity.

As far as could be ascertained, the period at which the attack of insanity occurred was during pregnancy, in seven cases, within fifteen days subsequent to delivery, in twenty cases, within one month and over fifteen days, in five cases; within the second month, in four cases; within the third month, in two cases; within the fourth month, in six cases; within the sixth month, in four cases; within the second six months, in two cases; immediately after weaning, or about one year after delivery, in two cases; in four other cases the attack took place during lactation, the exact period not ascertained.

The preceding attacks were non-puerperal in four cases; during pregnancy in four cases; immediately, or soon after delivery in fourteen cases; during lactation in two cases, while in six cases the exact period of the attack, which, in all, however, was after delivery, was unknown. So that of seventy-six known puerperal attacks, eleven began during pregnancy; forty-three during the two months following delivery; twenty-two during lactation, or immediately after weaning.

So far as an opportunity was presented for ascertaining the fact, the first symptoms of the attack of puerperal insanity were, in forty-eight cases out of the fifty-six, an excited mode of talking—this was observed in nine cases; delusions—these were observed in seven cases; attempts to wander away, observed in five cases; unfounded jealousy and suspicion, observed in four cases; hallucinations, observed in four cases; suicidal attempts, observed in four cases; fear of injury from some one, observed in three cases; fear of impending evil, observed in three cases; indifference to child, observed in three cases; attempt to destroy child, observed in three cases; ecstatic feeling, observed in one case; suicidal propensity with attempt upon the life of child, observed in one case. In eight cases the character of the first symptoms were not ascertained.

In respect to the form of insanity presented by the fifty-six cases analyzed by Dr. G.; in thirty-seven cases it was that of *mania*. Of these cases, five occurred previously to delivery; twenty-two immediately after, and nine during lactation. In fourteen cases the attack assumed the form of *melancholia*. Of these, two occurred previously to delivery, five soon after, and seven during lactation. The *monomaniacal* form was observed in five cases, all of which occurred either soon after delivery or during lactation.

In twelve of the fifty-six cases, as we have seen, the patients were affected with a suicidal impulse. "Allied with this perverted instinct," Dr. G. remarks, "and appearing sometimes in the same individuals, is the propensity or impulse to kill. The victims selected are usually those naturally claiming the love and sympathy of the patient. One patient tried to kill, by scalding, various persons; three patients tried to kill husbands; four patients tried to kill their infants; one tried to kill children and husbands; so that nine, or one in six, developed homicidal propensities. Of these, three were combined with the suicidal impulse.

"The emotions are usually in a state of tension, if such a term be admissible, so that the slightest cause induces a marked response from them. It is difficult to set the data to prove this statement in a clear array, and I, therefore, content myself with a simple assertion of the fact. Grief and anger, &c., appear very readily from the slightest cause.

"From the emotions, whose morbid development underlies so much of insane phenomena, to the senses and intellectual faculties is a natural transition. How far they are involved may be measured to some extent by the hallucinations, illusions and delusions that severally affect them." "More than one-half of the fifty-six cases were more or less under the control of some form of illusion. They heard voices directing them to do this, or to refrain from that. They saw robbers, or deceased relatives, or acquaintances, or faces constantly peering at them from the ceiling or the window. Several entertained that most harassing delusion that they were eternally lost, having committed the unpardonable sin; one

that her husband had bewitched her; and another that she could cure all the sick by laying her hands upon them. In one case, ecstasy 'rapt her soul in Elysium,' but soon the scene changed to the blackness of despair, and a fear of the demons who were tormenting her, taking possession of her."

We cannot command the space to present to our readers an analysis of the history which Dr. G. has presented of the symptoms and progress of puerperal insanity, deduced from the cases observed by him.

The prognosis of the disease is usually stated to be favourable. Of the fifty-six cases analyzed by Dr. G., thirty-one or 55.35 per cent. recovered, four or 7.14 per cent. were improved; six or 10.71 per cent. died, and fifteen or 26.78 per cent. were not improved. The results arranged with reference to the period at which the attack originated, the form the disease assumed, and the duration of the attacks are as follows: Of seven cases occurring during pregnancy, three recovered, one improved, and three were not improved. Of twenty-nine occurring within two months after parturition, fifteen recovered, three improved, three died, and eight remained unimproved. Of the twenty occurring during lactation, thirteen recovered, three died, and four were not improved. Of the thirty-seven labouring under mania, nineteen recovered, three were improved, and four died, eleven, after periods varying from eight months to ten years, remaining unimproved. Of the melancholic and other depressing forms of mental disease, nineteen cases, *twelve* recovered, *one* improved, *two* died, and *four* had received no benefit, during periods of from four to ten years.

Taking the number of preceding attacks into account, we find that there were fifty-seven recoveries, four cases improved, six deaths, and fifteen cases not improved. Which would give a ratio of 69.51 per cent. of recoveries.

With respect to the influence exercised by the previous occurrence in the same individual of attacks of the disease, the data furnished by Dr. G., gives the following proportion of recoveries. In eighty-three known puerperal attacks, there recovered from a first attack thirty-five out of fifty-two, or 67.3 per cent.; from subsequent attacks, twenty-three out of thirty-one; or 74.2 per cent. Thus, it would seem that a first attack is more disastrous to life and reason than a third, fourth, or fifth attack. If we take the non-improved, or those who died, and make the same comparison, we shall arrive at the same result.

As to the influence of time upon the prognosis; we find that within six months, thirteen recovered, and one died; in one year, ten recovered, three died, and two did not improve; in eighteen months, four recovered, and one did not improve; in two years, four recovered, one died, and one did not improve; over two years, four improved, one died, and eleven did not improve.

Of the thirty-one cases of recovery the subsequent history of *eleven* was unknown to Dr. G.: six remained well at the end of two years; two after eighteen months; four after one year; three after six months; two after three months since their last attack. One case, less time having elapsed in it, is omitted. Two cases relapsed, one after a period during which her health was complete, and the other after three months' freedom from any mental disorder. In the first of these cases, the relapse was caused by the brutal treatment of husband, which had also some share, probably, in the production of the first attack. It may be that the relapse in the second case was the result of her family cares being too harassing for her enfeebled mind to resist.

The cause of death is noted in six cases. Two died of *apoplexy*. The attack was sudden in both, in the ordinary course of mania, and without any premonition. One, a case of monomania of fear, died of *fatly degeneration of kidneys*. Several months before death general anasarca was developed, the urine was exceedingly albuminous with abundance of renal casts, increasing gradually in size and clear, waxy appearance, as the disease progressed, and occasionally oil globules. One died of *mania*; one of *no especial disease*, but gradually declined in strength, flesh, and mental energy, and after ten years of mental disquietude and constant suspicion sank into the grave. One died of *pharyngeal abscess*. Her insanity had been of fourteen months' duration.

In respect to the treatment pursued by Dr. G.: in a majority of the cases, anodynes, especially morphia and camphorated tincture of opium, were employed for the relief, in cases of mania and melancholia, of the tired brain from the

fatigue of its own teasing vagaries, and to induce sleep at night. Tonics—some one of the preparations of iron especially, were generally required. The citrate, tartrate or muriated tincture of iron may be used. According to Dr. G. the carbonate combined with conium, with the occasional addition of morphine answers admirably as a general tonic.

To quell the sleepless ravings of some cases a cautious use of chloroform was in a few cases found useful. From the free administration of diffusible stimulants more permanent relief was, however, derived by this class of patients. Wine, spirits, ammonia, sulphuric ether may be employed according to the special exigencies of the case.

The use of cathartics, to relieve costiveness, and of emetics to relieve the stomach from sources of irritation, will be occasionally useful.

In two or three cases—of a low, nervous, melancholy, somewhat hysterical character—with loss of appetite, inability to fix the attention on any object, Dr. G. has found great benefit from the continued use of moderate doses of quinia, with an occasional anodyne.

“In a word, the treatment of puerperal insanity,” remarks the author of the interesting paper under review, “is, to brace up the enfeebled body and shattered nerves, to procure as absolute quiet and repose for the organ of the mind, as we gain for a broken bone by the use of splints. To devise the special means by which this end may be attained constitutes the difficulty in both cases. In both, also, there is a point in their history, when passive treatment having done its work, it needs to be replaced by action of the limb or brain, as the case may be. To recognize the exact time when this time is reached, and make judiciously the change of means, should ever be objects of the greatest care. When mental exercise can be safely substituted for mental quiet—now passing into lethargy—excitement of the emotions replace indifference, then they are not only proper, but almost imperative. But, to be too hasty in this matter, is only to renew the former trouble. On the other hand, too long delay allows the patient to sink into partial fatuity.”

We cannot be accused of having occupied too large a space in our notice of the paper of Dr. Grundy. It is not always the size of a work that is the test of its value. A long didactic treatise will often fail in the communication of the same amount of positive information which is imparted by the little pamphlet before us, presenting simply the faithful analysis of the leading points presented by the history of fifty-six cases of puerperal insanity.

D. F. C.

ART. XXII.—*A Lecture.* By D. HAYES AGNEW, M.D., Surgeon to the Philadelphia Hospital, Lecturer on Anatomy, etc. etc. Published for the Class. 8vo. pp. 59. Philadelphia, 1861.

Eulogy on the late John W. Francis, M. D., LL. D., being a Discourse on His Life and Character. By VALENTINE MOTT, M. D., LL. D., etc. etc. Delivered before the New York Academy of Medicine, May 29, 1861. 8vo. pp. 33. New York, 1861.

THE subject of Dr. Agnew's lecture is a sketch of the life and professional labours of Baron Larrey, who, if not the father, was unquestionably the reformer and systematizer of military surgery. Who, as a surgeon, far outstripped all his predecessors in the extent and diversity of his professional attainments; standing prominent among his contemporaries for the soundness of his judgment in all things appertaining to his duties, whether as a simple surgeon, a surgeon-major of hospitals, a surgeon-in-chief, and, finally, inspector general of hospitals. He was equally distinguished for his devotedness to the entire detail of duties which devolved upon him in each of these positions, as for his untiring industry and ever active zeal, under all surrounding circumstances, from the very commencement of the protracted wars which sprang out of the French revolution, throughout the several campaigns, to which these gave rise; whether on the

Rhine, in Italy, in Egypt and Syria—in Boulogne, Ulm, and Ansterlitz; in Saxony and Prussia, in Poland, Spain, and Russia, and the final campaign in France and the Netherlands, of 1813. Amid all of which he was constantly busy in providing for the comforts and the safety of the soldiers—the prompt relief and recovery of the sick and wounded, by the introduction of flying ambulances, the organization of hospitals wherever most needed, the establishment of lectureships for the especial instruction of the French military surgeons, and the careful study of the character of the diseases and accidents incident to the life of the soldier, whether in the camp or on the field—whether upon alpine heights, in the damp and cool valley, the arid desert, the wide extended marsh, or the vines and the olive and the fig trees of Southern Europe; amid tropical heats, or the deep and drifting snows and biting frosts of a Russian winter.

Amid all his other employments, Baron Larrey found time to record his observations and to give them to the world, subsequently, in the form of essays and memoirs—thus erecting, with his own hands, the most appropriate monument that could be devised, to commemorate his talents and his labours—the strongest testimonial of his claim to the station of the first and greatest among the military surgeons of all countries and all ages.

The sketch of the life and labours of Baron Larrey given by Dr. Agnew, is one of very great ability, and replete throughout with deep interest. Without being tedious in details, it is, at the same time, sufficiently minute to present to the mind of the reader a very clear portrait of that illustrious surgeon—a truly accurate idea of his career as a surgeon—his intimate association with the movements and achievements of the French army under the republic and the empire, and of the claims which he presents to our consideration and to that of posterity.

The subject of Dr. Agnew's lecture—and one which has been so ably treated by him—was aptly chosen at the present juncture, when our country, forced aside from its peaceful pursuits, has been compelled to assume the panoply of war. Than Barron Larrey, no one can be adduced whose entire career is adapted to furnish a more admirable model for the imitation of those into whose hands are intrusted the health and lives of our citizen soldiers, whether during their sojourn in camp and garrison—when encompassed about with danger amid the fight, and when, after the strife and carnage are over, they are numbered amid the wounded and the maimed.

The learned, witty, polished and earnest Nestor of the medical profession of New York, Dr. John W. Francis, who, after completing the allotted three-score and ten years of man's earthly pilgrimage, was last year gathered to his fathers, has found in his friend, colleague, and contemporary, Dr. Valetine Mott, a truthful and appreciative eulogist.

No one of those whose names are identified with the history of medicine and medical literature in the city of New York, during the present century, stand in more prominent relief than that of Dr. Francis. After a thorough professional education and the diligent improvement of opportunities afforded him by a personal intercourse with the leading physicians and surgeons of London, Edinburgh and Paris, during a visit made by him to Europe, he commenced a successful career as a medical teacher and practitioner, in his native city. Here, amid his absorbing duties as a lecturer, and the occupation of his time by the calls of an extensive circle of patients, he nevertheless found leisure for the preparation of valuable contributions to the literature of his profession, and for intercourse with the wits and literati, the savans, poets, and artists of his day.

Fond of society, of which his brilliant conversational powers, and his varied knowledge, combined with an unostentatious liberality, made him, always, a favourite centre: delighting in all that is calculated to advance and to brighten life, Dr. Francis was equally alive and ever ready to fulfil the sterner duties of life. He was prompt to lend a helping hand in the promotion of every movement for the advancement of science, or the relief of suffering humanity. He was not merely the open advocate and efficient patron of public and professional charities, but his private life was a continual round of unostentatious beneficence; his ear was always open to the cry of distress, and his hand was ever ready to

supply, in secret, the wants of poverty, and to furnish solid relief to the pangs of the suffering.

In the death of Dr. Francis we have lost another of those worthies of the olden school, "whose lives and conversation magnified the physician in the eyes of the people, while their devotedness in the hours of sickness and of danger, endeared their profession to the hearts of the entire community."

D. F. C.

ART. XXIII.—*Transactions of the Epidemiological Society of London.*
Vol. I. Part II. 8vo. pp. 127. London, 1862.

THOUGH, taken as a whole, the contents of the present portion of the printed Transactions of the Epidemiological Society may not equal in value and interest those of the portion which preceded, nevertheless, more than one of the articles embraced in it furnish important materials towards an elucidation of the etiology and laws of propagation of epidemic diseases.

From a general report upon the prevailing diseases of the years 1859, 1860, drawn up by Dr. McWilliam, the able Secretary of the society, we select one or two facts of especial interest.

In the summer of 1859 the cholera broke out at Bombay and Poonah, in the East Indies, and almost simultaneously in Europe, where, commencing at Ham-burgh, and afterwards extending to the various countries of the Baltic, and later to the coast of Holland, it rested on the Mediterranean sea-board of Spain, and carried devastation amid the Moorish and Spanish troops in Morocco. From the autumn of 1859, up to that of 1860, the cholera appears to have been wide spread and fatal in many parts of India.

Cholera appeared at the Mauritius on the 19th of September, 1859. It continued to prevail within two miles and a half of Port Louis, until the 24th of November. It appeared also in the capital, but the conditions for its propagation not being present, only from twenty to twenty-five cases occurred there. At Grand River, however, which is within the municipality of Port Louis, 149 deaths were recorded. At this place there are two important aggregations of people, in the lunatic asylum, and at Camp Benoit, a large assemblage of badly built and badly ventilated huts inhabited by Indians. The facts connected with various visitations of cholera in this district are especially characteristic of the capricious nature of the disease. In the cholera epidemic of 1854, nearly fifty per cent. of the female inhabitants of the asylum perished, while Camp Benoit, the sanitary condition of which was bad, was the only place that escaped. During the epidemic of 1856, the entire district remained free from the disease, not a single case of diarrhœa, even, having occurred in the asylum. During the epidemic of 1859, again, the entire locality, with both the asylum and Camp Benoit, suffered severely. The immunity of this district at one time, and its invasion at another, could not be accounted for, we are assured, on any change in its sanitary condition.

On the 24th of November, 1859, the cholera disappeared entirely from every part of the Island, but in three weeks subsequently it reappeared and continued to prevail to the end of February, 1860.

From the same report we derive the facts connected with the importation into Lisbon of yellow fever in December, 1859, which are particularly interesting from their bearing upon the question as to the mode of conveyance of that disease to distant places and the measures adapted to prevent such conveyance.

A sailing vessel, the "*Cidade de Belem*," arrived at Lisbon, December 31, 1859, from Para, in Brazil, after a passage of thirty-eight days. Whilst the vessel was at Para, the yellow fever prevailed there, and eight days previous to her departure two of her crew took the disease and died. During the voyage the crew remained in perfect health. Three days after the ship's arrival at Lisbon, the hatches were opened for the purpose of unloading, and the same day all hands, including a pilot and health guard officer, both of whom were sent on board at Lisbon, were attacked with nausea, and other unpleasant symptoms.

The cook soon manifested symptoms of yellow fever, and died on board on the second day of the attack, January, 11th. The health officer was the next attacked, and after being in extreme danger finally recovered; one of the seamen was attacked on the 6th, and another on the 7th. Both of these died at the L'Anfaretto on the 18th of January.

Every precaution was taken with this vessel on her arrival at Lisbon. Her cargo, consisting of hides and other susceptible articles, was landed at the L'Anfaretto and burnt. The vessel was towed off the coast on the 11th of January, and ordered to proceed to Vigo, where she arrived on the 22d. After performing a quarantine here of fifteen days, she was admitted to pratique and returned to Lisbon, but was there again placed in quarantine, and shipped a cargo for Brazil, under the usual restrictions of that condition.

Here is a ship, leaving a port infected with yellow fever; her crew healthy, and maintaining good health during a long passage, but at the end of forty-one days, the disease which prevailed at the port of departure breaking out on board, attacking the crew, and two persons who came on board at her port of arrival.

The prevailing epidemic throughout Great Britain, during the years 1859 and 60, appears to have been smallpox. During the period referred to, many cases of second attacks of smallpox had been observed, and in many instances those supposed to be protected by vaccination have been attacked. Where the evidences of vaccination were complete, the variolous attack assumed always a modified form, was rarely confluent, and still more rarely fatal; in persons, however, in whom the cicatrices of vaccination were imperfect, a large number of confluent cases occurred, and many deaths.

To arrest, as far as possible, the further extension of the smallpox, the prevalence of which was rapidly on the increase, the Government, in the latter part of 1859, determined to communicate with the local authorities of each parish, warning them of the impending danger, and urging them to secure the protection of the inhabitants by timely vaccination. Notices were, in consequence, issued. The various schools were visited by the medical officers of health or under their direction, and means were taken without delay for protecting all found unvaccinated, as well as those whose vaccination appeared doubtful or insufficient; in some localities a complete system of visitation from house to house being pursued. The immediate result was a very sensible diminution in the smallpox mortality, and to the general and timely vaccination, the report before us unhesitatingly attributes the comparatively slight degree to which certain portions of London have suffered from the severe epidemic of smallpox with which the metropolis and the kingdom generally have been recently visited.

The longest of the papers contained in the present Epidemiological Transactions, are one by Dr. J. Y. Simpson, of Edinburgh, giving "notices of the appearance of syphilis in Scotland in the last years of the fifteenth century," and another by Dr. W. R. E. Smart, being "Observations on the Climatology, Topography, and Diseases of Hong Kong, and the Canton River." Both papers are replete with interest. The first exhibits a good deal of curious research among old books, many of them now but little known. It gives a rather startling exhibit, drawn from the testimony of contemporary writers, of the manners and morals of priest and layman, noble and plebeian, towards the close of the fifteenth century. Dr. Smart's paper on the Climatology, etc., of Hong Kong, is full of valuable facts, nearly all of which may be rendered useful in the elucidation of the etiology of disease, especially the influence of topographical and meteorological conditions upon its production and character.

Dr. Gaven Milroy, in a paper on the influence of contagion on the rise and spread of epidemic disease, has opened, briefly, a subject of the deepest interest whether simply in reference to etiology, or in its bearing upon the question as to the means best adapted for preventing the location and spread of such diseases as usually occur epidemically.

From the facts examined by him, Dr. Milroy, concludes:—

"That the exanthemata are diseases rather of *persons* than of *places*, and that the power and prevalence of their contagion seem to depend more on the diathesis or constitution of the individuals exposed to its influence, than upon the condition of the localities in which they live. The reverse holds true as to

the other febrile diseases (typhus, typhoid, and yellow fevers, etc.) which have been enumerated. Hence it is that they are much more under the control of ordinary sanitary measures than the proper exanthemata, and one or two other kindred distempers, such as whooping cough and diphtheria. Of these, more especially, he thinks it may be alleged, that contagion alone is rarely, if ever, the cause of their epidemicity or tendency to epidemic diffusion, but that epidemicity is always a great promoter of their contagious activity."

An interesting paper is furnished by Dr. B. W. Richardson on Scarlet Fever. It is supplemental to one on the same subject communicated by him to the society, eight years previously.

In reference to the influence of season upon the spread of scarlet fever, the author has examined the effects of temperature; barometric pressure; amount of rain; the rate of movement and electrical condition of the atmosphere; and shows that but few facts of value have been adduced showing the influence of particular atmospherical changes on scarlet fever. It may, however, be worthy of remark, that during a period of eighty-four days, when in one locality there was an equal mortality of sixteen per week, there were fifty-seven days of positive electricity; while in thirty-five days, during which the rate of mortality was forty-one per week, there were thirty-two days in which there was no electrical manifestation. Hence it might be inferred that the absence of electrical manifestations was, at least, coincident with a high mortality, while the presence of positive electricity was coincident with a low mortality. But, on the other hand, when we find a week of extreme high mortality—188—during which there were but two days of positive electricity; and a week of extreme low mortality—8—during which electricity was absent on five days, we can view the facts which would seem to have an affirmative signification, only in the light of coincidences. Still, Dr. R. thinks it possible that, hereafter, some relationship may be traced between the presence of electricity and a low mortality from scarlet fever. It is possible that, while electrical conditions of the atmosphere may not affect the spread of the scarlatinal poison, they may cause modifications in the effects of this on the animal organism.

As to the influence of meteorological conditions of the atmosphere, generally, upon scarlet fever, the statistics in our possession furnish a large amount of negative evidence. Showing that the mortality may be the same under the most opposite conditions of temperature. The most interesting observations are those which show that, if the scarlet fever be due to an aerial poison, it is one limited in its range of action, uninfluenced, at all events, by the mechanical vibration of the atmosphere. In a dead calm, the mortality may be sixteen per week; with a current of air passing over the infected spot at the rate of two hundred and seven miles per day, the mortality may be the same; while, again, with a week of extraordinarily high mortality—188—a current of air may be sweeping over the place at the rate of one thousand and ten miles.

As regards the cause of difference in type of scarlet fever, Dr. R. endeavoured, by excluding its various possible causes, to arrive at the true one. His results in this respect are thus summed up:—

"If we admit—and we are bound to admit as much—that the variety of type of scarlet fever is not dependent upon differences of poison, nor on meteorological condition, locality, physical condition of patient at the time of infection, age, or hereditary taint, where shall we look for an explanation of the singular phenomenon, that of two children attacked at the same time, the one may be comparatively well at the period when the other lies dead? Each event being encircled in the space of a few days. The question is one of the most profound and important in the field of medical inquiry. At this stage of our knowledge we must leave it, with but one supposition, that there is in the organism itself a directing course which modifies the violence of the poison or intensifies its action; a course allied to that agency which prevents in nearly every case a repetition of the disease altogether in those who have passed through its stages, whether gently or severely."

In proof of the connection between scarlet fever and rheumatic fever, Dr. R. adduces facts derived from his own observation, in conjunction with those already on record. Analogy is also instituted as to the relationship of scarlet fever with the epidemic called *Dengue*.

Dr. R. classes scarlet fever as essentially an inflammatory disease; differing thus from Franz Simon, and many more of equal authority who refer it to the same class of affections as typhus and typhoid fevers.

Dr. R. maintains that the poison of scarlet fever is not a gas, nor volatile, but a solid substantive matter, which is thrown off by the lungs or skin, probably with epithelium, and when introduced into the body of the healthy subject, by interfering with the natural zymotic process of the living organism, leads to the formation of an abnormal product—an oxy-acid, which is carried by the systemic blood, and gives rise by its morbid action to all the acute symptoms of the disease.

D. F. C.

ART. XXIV.—*Practical Midwifery: comprising an Account of 13,748 Deliveries which occurred in the Dublin Lying-in Hospital, during a period of Seven Years, commencing November, 1847.* By EDWARD B. SINCLAIR, A. B. T. C. D., etc. etc., and GEORGE JOHNSTON, M. D. Edin., etc. etc. 8vo. pp. 576. London, 1858.

THE present volume of practical midwifery is, strictly speaking, the record of one of the fullest and most instructive courses of clinical obstetrics with which we are acquainted. It comprises a statistical account of all the deliveries which took place in the Dublin Lying-in Hospital, during a period of seven years, from the 1st of November, 1847, to the 1st of December, 1854, for the greater part of which term the authors, Drs. Sinclair and Johnston, occupied, either separately or conjointly, the position of assistant physicians to the institution.

Besides the general statistics of the hospital, a record, more or less full, is given of each important particular in reference to the leading cases in each of the several classes of labour—with the practice pursued in particular cases, the reason for its adoption, when it differed from that ordinarily followed, and its results.

Numerous tables are given, illustrative of the general facts connected with the condition of the females confined, the nature, character, complications, and duration of the labours, with their results, in reference, as well to the mothers as to the children. Several of these tables are novel in construction, while they are all equally interesting and instructive.

We know not which most to admire—the clear, simple, and unpretending manner in which the entire volume has been got up, or the vast amount of valuable practical instruction on nearly every question connected with bedside obstetrics, with which every chapter of it is replete.

The introductory chapter presents a history of the origin and progress of the Dublin Hospital, up to the year 1858, with a short account of its economy, and general management. From this we learn that, from the opening of the institution, in 1757 to the year 1847, a period of ninety years, 156,100 women were delivered in its wards. These gave birth to 158,535 children, embracing 2,366 cases of twins, 33 of triplets, and one of quadruplets. Of the women delivered 1903 died in childbed. Of the total number of children born, 82,314 were males, and 76,228 females; being an excess of 6,093 males. Of the entire number of children born, 9,291 were dead born, 5,733 died in the hospital, and 143,511 went out alive.

The proportion of still-born children to the entire number of births, was, thus, 1 in every $17\frac{1}{2}$; while one out of every 26 of the live born children died in the hospital. Nearly one woman in every 66 delivered had twins, and one in 4,730 had triplets. The mortality, from all causes, of the women delivered, was one in 82.

During the seven years, from November, 1847, to the same period in 1854, the number of women delivered in the hospital amounted to 13,748, and these gave birth to 13,933 children, not including 50 abortions, occurring at so early a period as to render it impossible to distinguish the sex. Of the children born, 7,177 were males, and 6,756 were females. The still-born, including those born putrid, amounted to 968.

Of the 13,748 women delivered, 4,535, or *one-third*, were primiparous; 233, or about *one* in 59, had twins, *one* had triplets, and 163, or *one* in every 84 $\frac{1}{4}$, died in childbed, from all causes—puerperal and other. The number of males exceeded that of the females born by 421. The total number of still-born children, from all causes, was 968, or *one* in about every 14. Of the still-born 487 were putrid at the time of birth, which, deducted from the total number of still-born, leave 481, or nearly *one* in every 28 of the entire births, whose death was either the result of actual labour, or took place immediately prior to its setting in. Upon analyzing these latter we find that 284 were males, and 197 females. Of the 481 cases, 99 of the children were premature, namely, 43 males, and 56 females.

In order to arrive at a correct idea of the mortality of the hospital during the seven years preceding 1854, there should be deducted 17 females admitted in a dying state, leaving a balance of 146 deaths from all causes, or nearly *one* in 94. Deducting from the above 146 fatal cases, those in which death had occurred from visitations of puerperal fever, namely, seventy, the number of those dying from all causes will be reduced to 76, or 1 in every 180 $\frac{3}{4}$. Deducting again such as died from diseases altogether unconnected with the puerperal state—40 in all—there will be left only 36 deaths which originated in labour, or 1 in every 381 $\frac{1}{2}$ of those delivered. Retaining the 17 cases that were admitted in a dying state, and deducting first, the 70 deaths from puerperal fever, these being considered accidental, 93 deaths attributable to all causes will remain, or 1 in 148 $\frac{3}{4}$. Deducting then the 40 deaths which did not result from the effects of labour, there are left 53 deaths directly connected with labour, or 1 in 259 $\frac{3}{4}$ of the entire number delivered.

Referring to the tables which are given, we find that in reference to the numbers delivered the months stand thus: May giving the greatest number; next March; then June, April, July, August, February, November, December, September, October, and last, January. The proportion of primiparae to the number delivered in each month, we find to have amounted to about one-third. The smallest amount of mortality occurred during the month of May, and the greatest, during the month of December. That in May being in the ratio of 1 to 184 $\frac{1}{2}$ and that in December of 1 to 46 $\frac{2}{3}$ or nearly one 47th of the women delivered. The month of May, during the seven years, gave the smallest mortality with the greatest number of deliveries, while December gave the fewest deliveries, and the greatest amount of mortality. Taking the series of months during the seven years, in the order of their health, commencing with the most healthy, we find them to run thus: May, June, September, October, August, March, January, November, April, July, February, and December.

The clinical observations recorded in the volume before us are derived exclusively from the 13,748 deliveries which occurred during the seven years preceding 1855. The observations are arranged according as they apply 1st, to natural labour; secondly, to preternatural labour; thirdly, to difficult labour; and fourthly, to anomalous labour. While, in a fifth part, are comprised observations on secondary hemorrhage, induction of premature labour, version, emphysema, fetal malformations and deformities, ophthalmia neonatorum, puerperal mania, the use of ergot, chloroform, puerperal fever, phlebitis, mortality among children born alive, sloughing of vagina and labiæ, etc.

Notwithstanding the excellence and direct practical bearing of all the observations embraced in the volume before us, it will not be within our power to present anything approaching to a complete analysis of its contents. The best we are able to do is to cull from the different chapters such observations as we believe will be most interesting to our readers.

The admirable account given in the first chapter, of the management throughout of a case of purely natural labour, may be read with profit by all. In respect to the management of the third, or placental stage, the practice pursued in the hospital was, for the practitioner to resume the charge of the *contraction*, which had been under the custody of an assistant, as soon as the division of the cord is effected. The command thus obtained over the uterus was never lost, until the placenta had been either artificially removed, or naturally discharged, which latter usually took place in about fifteen or twenty minutes. The binder was not adjusted until the completion of the third stage, and even not then, until a sufficient time had elapsed to indicate that the uterus was really permanently

contracted. The reasons assigned for this practice are as follows: The woman being always liable to the occurrence of hemorrhage, as long as the placenta remains in the uterus, the hand, retaining its grasp of the fundus of that organ, is constantly apprised of its actual condition, while, at the same time, a sufficient support is given to the abdominal parietes, and when prompt and due contraction does not occur, the necessary stimulation can at once be given, and the collection of clots within the cavity of the uterus prevented. Had the binder been put on immediately subsequent to the second stage, and hemorrhage occurred soon afterwards, time would be lost in unbinding and searching for the uterine tumour, now difficult to find, and when found, almost impossible to command completely, from the intestines having interposed themselves between it and the abdominal parietes. It is also considered a desideratum that the woman shall not be disturbed after the expulsion or removal of the placenta, in order to readjust the binder, as would necessarily be the case when it is previously applied.

The remarks on the management of sore nipples will interest every practitioner. They were a common source of annoyance, in the hospital, both to primipare and pluripare—more so, however, to the former. They consisted in either fissures or excoriations, and frequently both combined. A nipple wash, composed of borax, chalk, and diluted spirits, was found to be a good application. Combined with cleanliness, and the occasional use of a shield, it appeared to furnish the best remedy for these accidents. Tincture of catechu was found useful in cases of mere excoriation. Gutta-percha collodion, applied so as to form a kind of flexible shield round the areola and base of the nipple, afforded, occasionally, considerable comfort during the process of suction, protecting the part from irritation, lessening the pain, and hastening the healing process. Sometimes, however, it seemed to do more injury than good. The application of weak citrine ointment was attended with but doubtful success. The various astringent ointments and lotions were found so frequently to be productive of no good, that latterly the application of the nipple wash, first mentioned, with a shield, was the general practice adopted. Under all circumstances care should always be taken to dry well the nipple and areola each time after the infant is done sucking, and to prevent the former from remaining in the infant's mouth longer than necessary.

When there was considerable fever upon the setting in of the secretion of milk, with much distension of the breasts, a quick pulse, hot skin, and annoying headache, diaphoresis was encouraged, by means of the ordinary diaphoretic mixture. To the over-distended breast was applied cere-cloth, or a soft linen cloth, spread with a thin layer of treacle, subsequent to the use of the breast-pump, and friction with warm oil. The lochial discharge was carefully attended to, and the condition of the mucous membrane ascertained, as to its freedom or not from inflammation.

The subject of *puerperal convulsions* is treated of in connection with anomalous labour. They are described as apoplectic and hysterical. The former presenting symptoms of cerebral congestion to a greater or less extent, and requiring a depletory treatment. The authors of the present work consider that the term apoplectic is strictly applicable to this form of convulsions. During or subsequent to labour, hysterical convulsions were extremely rare.

The women most frequently affected with convulsions were primipare—fourteen of the 63 attacked had, however, been previously confined. Of the 63 cases there were but 5 in which the presentation was præternatural, and of these five 3 were in plural births.

When a woman entered the hospital affected with œdema, albuminous urine, headache, dizziness, etc., leading to the expectation of convulsions, labour not having actually commenced, the treatment was, free and repeated purging with hydragogue cathartics, the restriction of the patient to a horizontal position in a cool ward, and her confinement to the mildest and lightest nutriment. In some cases the œdema was so great as to require acupuncture of the labia majora.

In nearly all the cases which came under notice, anasarca and albuminous urine were present to a greater or less extent. The large intestine was generally loaded. Occasionally, when no suspicion had been entertained of convulsions, a violent paroxysm would occur during labour, when, upon careful examination, almost invariably œdema of the inferior extremities would be dis-

covered. Occasionally convulsions, and of the most violent form, occurred, when neither œdema nor albumen could be detected.

During an attack of convulsions, care was taken to prevent the woman injuring herself. To guard the tongue from laceration, a gag made of the handle of a spoon thickly padded with lint, was placed between the teeth.

As soon as the paroxysm had subsided, blood was taken from the arm very freely, and a purgative given, composed of five grains of calomel and ten of jalap, formed into a bolus, its action upon the bowels being promoted by a strong enema of castor oil, turpentine, and assafoetida—repeated if necessary.

If the attacks continued undiminished in intensity, the head was shaved, cold applied to the scalp, and occasionally, at the same time, flannels wrung out of hot water were wrapped round the lower extremities. Tartar emetic solution, opium and calomel, were also had recourse to. Opium was considered useful after free purging and bleeding. Chloroform was seldom given, and never until after depletion.

When the head of the child was within reach of the forceps, it was at once seized and the infant extracted. When the severity of the case demanded it, the perforator was had recourse to without hesitation.

We copy entire the general summary of the observations made in twenty-six cases of puerperal mania.

"Occasionally mania set in suddenly and quite unexpectedly, but more frequently its approach was gradual, and sometimes insidious.

"It presented itself under two varieties, the one marked by a state of great excitement, with quick pulse and flushed face, the other, and the most frequent form, of a low type.

"In the treatment of these cases restraint was never had recourse to unless absolutely demanded; it was never required save in the first variety of the disease. Careful and constant watching generally sufficed. In no instance was the lancet used after mania had set in, but some cases of convulsions during labour had been bled previous to the attack. With the exception of these, with a case of placenta prævia, and one of accidental hemorrhage, there was no example of extraordinary loss of blood amongst the women affected.

"The line of treatment pursued in the first variety of mania was, to clear the *prima viæ* thoroughly and at once. To effect this, a brisk emetic was given, which was followed soon afterwards by a purgative enema containing assafoetida, and cold was applied to the head. Did the excitement continue, nausea was kept up till it was lowered, and then a sedative was occasionally given, such as hyoscyamus. In the low form of mania the bowels were cleared out with enemata, mild nourishment was freely given, and the preparations of morphia as freely used.

"Mania occurred in 4 instances in which labour had been accompanied by convulsions, and in 1 where there was albuminuria and œdema, but no convulsive seizure during or subsequent to delivery. Intense mental anxiety may have induced the disease in 4. It happened to 3 women whose labours had been tedious. Cerebral disease gave rise to it in 1 instance, in 1 it occurred after labour complicated by placenta prævia, in 1 after accidental hemorrhage, and 1 woman who had been the victim of seduction, was seized with it. No cause whatever could be assigned for its occurrence in 10 instances. Of the 26 cases of mania, 18 recovered, 5 were removed, and 3 died—1 of low fever, 1 of abscess in the brain, and one of pneumonia. The first and last were pluriparæ.

"The primiparæ amounted to 17, giving birth to 8 boys and 9 girls, of the former, 7 were born alive, and 1 dead. Of the latter, 7 were born alive, and 2 dead. The 9 pluriparæ gave birth to 4 boys, and 5 girls, all save 1 of the latter were alive, and this was putrid.

"Of the 26 women, 22 were delivered by the natural efforts—13 primiparæ, and 9 pluriparæ; the forceps completed the labour of 3, all primiparæ, and 1 was delivered with the perforator and crotchet, also a first case. With only 4 did the labour exceed twenty-four hours.

"The ages of the 17 primiparæ were as follows: 19 years, 2; 21 years, 4; 22 years, 1; 23 years, 1; 24 years, 2; 25 years, 1; 26 years, 1; 27 years, 2; 28 years, 1; 30 years, 1; 34 years, 1. Two-thirds were, thus, under 25 years of age.

"The 17 primiparæ were attacked as follows: 1 on the *second day*; 1 on the

third day; 2 on the fourth day; 3 on the fifth day; 4 on the sixth day; 5 on the seventh day; and 1 on the eighth day.

"The ages of the 9 pluriparae were as follows: 25 years, 1; 28 years, 1; 30 years, 1; 32 years, 1; 35 years, 2; 36 years, 1; 45 years, 1; 50 years, 1. And these were attacked as follows: 1 on the first day; 2 on the second day; 1 on the fourth day; 2 on the fifth day; and 3 on the sixth day."

In respect to puerperal fever, although during the seven years from November, 1847, to November, 1854, not a single year passed without the occurrence of the disease, still it could not be said there prevailed in the hospital any lengthened or severe epidemic of it. During the three years from 1848, to 1850, both inclusive, the number of cases of puerperal fever stands for each year respectively, 43, 29, and 15. Then for the four years, from 1851 to 1854, both inclusive, the cases were, 10, 3, 8, and 11, respectively.

The cases arranged according to the months in which they occurred during the foregoing seven years, stood as follows: January 8; February 12; March 11; April 9; May 2; June 5; July 15; August 20; September 4; October 5; November 17; December 21; making a total of 129. Of these 75 or about 58 per cent. terminated fatally: The deaths arranged according to the months in which they occurred were as follows: January 6; February 8; March 6; April 7; June 2; July 9; August 10; September 2; October 4; November 9; December 12; Total 75.

Few of the cases of puerperal fever occurred after tedious or instrumental labours; on the contrary, the very great majority occurred after cases of purely natural labour.

During the early portion of the seven years referred to, the lancet, we are informed, was employed in the treatment of the disease, but it was soon thrown aside, except in certain cases where there was a full habit, finally, however, the lancet was altogether discarded. Leeches were applied, but by no means so often as might have been expected, nor so freely as was once the rule. In general the fever was of a low form, requiring nourishing food throughout, and very early in the disease, stimulants. Wine, and even brandy in large quantities, were frequently given.

The medicines employed were chiefly mercury, various preparations of opium, ipecacuanha, and turpentine. The last article was used in every form, by the mouth as an enema, and as an epithem, either sprinkled over flannel wrung out of hot water, or upon warm moist spongio-piline.

When the premonitory symptoms of peritonitis occurred after a previous, or during an existing state of constipation, the bowels were at once acted upon by means of a mercurial cathartic followed by a purgative draught, and an enema if necessary. When once the bowels were fully evacuated, it was considered of the utmost importance to keep them quiet.

During the seven years ending with November, 1854, 325 of the children born died in the hospital. The particulars in reference to which are shown by the following table:—

NO. OF PREGNANCY.		SEX OF CHILD.			CAUSE OF DEATH.										
Primiparae.	Subsequent.	Male.	Female.		Puny at birth.	Tedious labour.	Deformity.	Overlain.	Convulsions.	Sclerema.	Tetanus.	Erysipelas.	Icterus.	Congestion.	Hæmorrhage from funis.	Hæmorrhage from bowels.
139	186	192	151	228	28	6	24	17	2	18	8	1	7	3	1

Of the above 56 were twin children, born of 40 mothers, of whom 20 were primiparae. Of these 56 children (8 were premature at the seventh month), 33 were boys, and 23 girls; 47 of the 56 were puny at birth; 4 were overlain; and 5 died of erysipelas. One mother gave birth to 3 of the 325 children; they were

premature. Of the 24 infants reported in the table there is reason to suspect that of some the deaths were not strictly accidental.

Of the 17 who died of convulsions, 9 were males, and 9 were of pluriparous mothers. None of the labours were much protracted, yet the second stage was protracted in some, and the child's head was subjected to considerable compression. The deaths all occurred within 7 days:—viz., 2 on the *first*, 4 on the *second*, 5 on the *third*, 2 on the *fourth*, 2 on the *fifth*, and 2 on the *sixth* day. One of the children who died on the fourth day was a girl, a firstling, born after a labour of thirty-seven hours, with a short but severe second stage. The delivery was perfectly natural. Soon after birth convulsions set in, and recurred at short intervals until death. On examination both parietal bones were found fractured. The fissures commenced at right angles to the sagittal suture, from points about an inch distant from the superior edge of each bone. One fissure extended across the point of ossification of the left parietal.

Only two cases of scleroma occurred, both died. One was a boy, whose mother was in abject poverty, and who had been in another hospital for diarrhœa before her confinement. Sclerema was present at birth, and cancrum oris set in on the seventh day; death ensued on the ninth. The other, a girl whose mother was healthy, was also born with the disease, and premature; it died on the third day. The first-mentioned was delivered after a labour of four, and the second after one of five hours' duration. The treatment consisted merely in keeping the surface warm, and giving small doses of wine whey after the bowels had been cleansed.

Eighteen deaths took place from trismus nascentium—10 boys, 8 girls. Three—2 boys, 1 girl—were of primiparous mothers, and 15—8 boys, 7 girls—of pluriparous mothers. All the deaths occurred within ten days, viz.: 2 on the second, 2 on the third, 1 on the fourth, 1 on the fifth, 3 on the sixth, 6 on the seventh, 2 on the eighth, and 1 on the ninth day. In not a single case was the umbilicus found unhealthy. The treatment pursued was nearly the same as in convulsions. Half a grain of calomel and the same quantity of Dover's powder were given every two hours. The hot bath was frequently employed, and the child's strength supported by wine whey. True trismus was invariably fatal.

There was but *one* death from icterus. The patient was born in the 14th pregnancy of the mother. The labour lasted 4 hours: Death occurred on the third day.

Seven deaths were referable to congestion: viz., 5 boys and 2 girls, 3 of them first children including one girl; and 4 subsequent children one of which, also, was a girl. *One* was born after a labour of three hours, 1 after one of five; 1 after one of seven; 1 after one of nine; 1 after one of thirteen; and 2 after labours of eighteen hours.

1st Case. Funis prolapsed—version. Great difficulty experienced in extracting shoulders and head, from oversize of the infant. The labour lasted 18 hours. The child died on the second day.

2d Case. A third pregnancy: face presentation. Though the labour lasted only five hours the face was enormously congested. It was a girl and died on the second day.

3d Case. A second pregnancy: breech presentation: from the large size of the child, a boy, there was considerable difficulty and delay in delivering the head. Labour lasted nine hours; the child died soon after birth.

4th Case. A primipara; delivered on her way to the hospital after a labour of three hours. When admitted the child, a girl, had the head and face much congested, probably from the length of time which elapsed between the birth of the head, and that of the shoulders. It lingered till the seventh day.

5th Case. A primipara and face presentation, like the 3d case, except that labour lasted thirteen hours: the child, a boy, died soon after birth.

6th Case. A seventh pregnancy; breech presentation, a boy. Similar to 3d case.

7th Case. A primipara. The funis, after birth of head, was found coiled twice round the neck of the child, a boy. The delivery was hastened as much as possible, yet after birth respiration was not established, until a drachm or two of blood had been allowed to flow from the funis. The child died in a few hours.

Three deaths occurred from hemorrhage from the funis: one, a boy, was readily delivered by version under the influence of chloroform, the funis having pro-

lapsed. Respiration was with difficulty established. When left it was doing well, but from neglect, it was found, too late, that the ligature had become relaxed, and the child sank from the effects of the consequent hemorrhage. Second and third cases, a boy and a girl, were each born after an easy labour, and death resulted from similar inattention.

We might with great profit extend our notice of the work before us. To indicate, however, all that we find interesting in it, would carry us very far beyond reasonable limits. The volume will be found by all who consult it a rich mine of practical midwifery based upon a large number of careful bedside observations.

D. F. C.

ART. XXV.—*On the Health of Merchant Seamen.* By J. O. M'WILLIAM, M. D., etc. etc., Medical Inspector, Her Majesty's Customs. 8vo. London, 1862.

VIEWED in no other light than one of mere interest, an inquiry into the sanatory condition and vital statistics of the merchant sailors becomes a subject of the deepest concern in every commercial community. A correct and intimate acquaintance with his present position in a sanatory point of view—of the causes, if any, by which his health is impaired and his life shortened, and how far these are inseparable from the circumstances in which he is necessarily placed, or are removable by means within our reach—is essential as the basis for whatever reforms may be required to afford to the merchant seaman every possible protection against the morbid influences to which he is now subjected.

Notwithstanding, within the few past years, much has been effected by legislative enactments and private exertions, towards the moral and social improvement, as well as the protection of the health and lives of seamen, it is to be feared that, in respect to those, more especially, who are engaged in the merchant service, many errors and abuses still continue, the removal of which is necessary before their sanatory condition can be said, in truth, to have attained its proper standard.

In the paper before us—a reprint from the *Transactions of the National Association for the Promotion of Social Science*—Dr. M'William has directed attention to the subject, and has presented such observations in respect to it, as, so far, he has been enabled to collect; with a promise to further prosecute the subject, in the hope of being permitted to place the results before the Public Health department, at some future meeting of the Association.

Since July, 1860, Dr. M'W. has obtained from the office of the Registrar General of Seamen such materials as have enabled him to compile a series of tables showing the actual number of deaths occurring among the seamen employed in merchant ships for the United Kingdom and channel islands, whether engaged in home service or in foreign voyages, during nine consecutive years from 1852 to 1860 both inclusive, with the main causes of the deaths; and the deaths, with their causes, that took place on the home and foreign voyages respectively, for three years, 1856 to 1858, both years inclusive.

From the first of these tables we learn that a yearly average of 734 deaths, or 4.30 in every thousand, was caused by fevers, a yearly average of 272.9 or 1.62 per 1000 by dysentery, a yearly average of 3.72 or .22 per 1000 by scurvy, a yearly average of 1.335.2, or 7.72 per 1000, by drowning and other accidents, and an annual average of 868, or 4.83 by causes not ascertained. Giving for the nine years ending with 1860, a total average of deaths from all causes, each year, of 3,249, or 18.62 per 1000.

The comparative security of health and life enjoyed by the seamen of the Royal Navy and in the merchant service of Great Britain, is shown by a table given by Dr. M'W. exhibiting the ratio of deaths in each, during three years, from 1856 to 1858, both inclusive. The annual average per 1000 of deaths among the seamen of the Royal Navy, was from disease, 18.70; from drowning and other accidents, 4.53; from all causes, 20.25. While the annual average of deaths among the seamen engaged in the merchant service from disease, during the same period, was 10.98 per 1000; from drowning, 8.87; from all causes, 19.85.

Dr. M'W. remarks, it is to be borne in mind, that, "during the period in

question, the number of deaths in the navy was considerably augmented by the loss sustained both by disease and wounds in action among the seamen and marines employed in the operations in China, and the naval force serving on shore during the mutiny in India."

In another table exhibiting the deaths among seamen in the merchant service, engaged in the domestic and foreign trade respectively, and in the Royal Navy on the home station for the three years ending with 1859, it is shown that the average strength per annum of the merchant seamen engaged in foreign voyages was 132,339, while the annual average of deaths was 2,416, or 18.20 per 1000. The annual average of merchant seamen engaged in home voyages was 43,259, giving an annual average of 1,043 deaths, or 24.20 per 1000. The deaths among the seamen of the Royal Navy on the home station was, during a series of years, only from 10 to 11 per 1000.

"The most accurate information is possessed," Dr. M'W. informs us, "as to the amount of deaths that take place among merchant seamen while actually at sea, but that number must not be understood to represent the actual loss of life consequent upon service, on board of merchant ships. Dr. Bryson has observed with reference to the seamen and marines of the Royal Navy, that, 'if it were possible to follow out invalids discharged from the navy into private life, the death rate would be somewhat increased, for it is not to be doubted that a considerable number of those men die of disease contracted in the service, soon after they are discharged from it.' In this way a certain number of deaths resulting from service in the navy escape observation, but the amount of loss from disease contracted in the merchant service, of which we have no record, must be far greater.

"In the Royal Navy accurate returns are made of the invalidings, as well as of the deaths, on all stations, whether on board ship or in hospitals. Invalids from the navy abroad are, on their arrival in England, received into the naval hospitals, where, as a general rule, they remain until they are sufficiently well to be discharged, or until they die. In the merchant service, on the other hand, we have no means of tracing the fate of seamen discharged sick, or of those who, from desertion and other causes, leave their ships while abroad. Nor can we arrive at the extent of damaged constitutions and consequent deaths from climatorial and other causes, after the voyage has ended, as the men are then at once discharged. If in good health they soon return to sea, and if sick they fall in with the general population, and help to swell its mortality, while that of the mercantile marine is thereby proportionately diminished.

"The seamen of the Royal Navy and the merchant seamen spring from the same class. The range of age (from fifteen to fifty-five) is nearly similar in the two services, and both are employed in every quarter of the globe, but in many other respects they are very dissimilarly circumstanced. The longest voyages in the mercantile service rarely exceed eighteen months, while men of war are, as a general rule, several, it may be five, years on one station, however unhealthy. In the Royal Navy, where hygiene in this country may be said to have had its birth, there are circumstances favourable to health, as discipline, clothing, cleanliness, good victualling, and, it may be added, breathing space, which, as a general rule, do not exist in the same degree in the other service. The man-of-war sailors have also, in all cases, medical attendance. On the other hand, the merchant seaman, although much exposed in landing and loading cargoes while abroad, and less under control as regards drinking and other excesses than the man-of-war's man, does not, like him, labour under the disadvantages of long continuance in a bad climate, and consequently his constitution gets renovated by comparatively frequent returns to the more healthy latitudes. Making due allowance for the deaths in the merchant service, of which we have no account, I think it may be assumed that the merchant seamen are less obnoxious to diseases originating in climatorial causes than the seamen of the Royal Navy; but, although exempt from the casualties incident to war, they suffer far more from drowning and violence than the seamen of the fleet—a circumstance due in great measure to the comparative rarity of shipwreck in the navy. The proportion of deaths from drowning and accidents in the navy is seldom above 5 per 1000 of the whole force employed, while the normal death rate from such causes in the merchant service seems to oscillate between 8 and 11 per 1000."

When, as is very clearly shown by Dr. M'William, there is taken into account the great addition necessary to be made to the ascertained and recorded deaths in the merchant service, in order to arrive at its true mortality, with the fact that the merchant seamen are much less continuously exposed to climatorial sources of disease, more especially those of the tropics; that they are exempt from the diseases and casualties incident to war; and that, notwithstanding, the records, perfect as regards deaths at sea, but far short of the actual number due to sea service, indicate an actual mortality, from all causes, very nearly equal in the foreign voyages, to that of the Royal Navy, and, in the home service much in excess of it. When these circumstances, we repeat, are taken into consideration, the conclusion appears inevitable that, although much has been done, all is not done that might be done to secure the health and safety of the seamen of the British mercantile marine, who have been appropriately termed "the source and resource of her naval power."

How is it in respect to the health and lives of the merchant seamen of the United States? Have they had thrown around them constantly every sanatory safeguard with which it is in our power to invest them? How is the mortality among them compared with that among the seamen of our navy? Will not some one who has the time and opportunity at his disposal prepare for our information and guidance sanatory statistics in reference to the sailors of this country both on board our national vessels and merchantmen, similar in character to those which Dr. M'William has commenced in respect to those of Great Britain?

D. F. C.

ART. XXVI.—*Anatomy, Descriptive and Surgical*. By HENRY GRAY, F.R.S., etc. The drawings by H. V. Carter, M.D., etc. The dissections jointly by the author and Dr. Carter. Second American, from the revised and enlarged London Edition. With 395 engravings on wood. Large 8vo. pp. 816. Philadelphia: Blanchard & Lea, 1862.

THIS handsome volume of Mr. Gray's must possess some special merit in the eyes of the medical profession, since a second edition of it is so soon called for. It has indeed acquired a degree of favour, which, so far as we know, is unprecedented, in view of the number of well established rivals with which it had to contend. On any other branch of medical science, such as physiology or surgery, the peculiar views, the brilliancy of style, or the accidental position of an author, may gain him acceptance; but a book of descriptive and surgical anatomy must rest its claims on some broader basis. Clearness and accuracy in the text, with an excellent system of illustrations—the great requisites in such a work, are possessed by the treatise before us; and something may be also due to the generous amplitude of its proportions.

The preparing of this second edition was probably almost the last literary labour performed by its lamented author, who died of smallpox in June, 1861, aged thirty-six. Few men have accomplished more for science at so early an age.

The additional matter contained in the present issue has reference mainly to minute anatomy, which was almost wholly passed over in the first edition. The number of engravings is increased by thirty-two, most of the new ones being original and valuable. One of these, showing a transverse section of the wrist, with the posterior annular ligament and the canals for the various tendons, strikes us as belonging to a class of illustrations too little employed. Students and practitioners are too apt to be unacquainted with the different aspects and positions of parts taken collectively; they follow the ordinary routine in their dissections, and omit what after all is the essential matter, the relation of one organ with another. It is this which makes our knowledge of anatomy stereoscopic.

But, as we have already remarked, the standing of this excellent treatise is established, and it needs no further commendation from us. It may, however, be added, that the favour accorded to Mr. Gray's work affords evidence of the correct judgment of those for whom he wrote; while the fact that his American publishers feel warranted in such an enterprise, in times like the present, is surely of good omen.

J. H. P.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Phenomena of Hybridity in the Human Genus.*—Broca has by careful researches been led to the view that the various races of man are different species of the same genus. He exposes as inconclusive the principal arguments adduced in favour of the unity theory, and dwells especially on the incorrectness of the assertion generally made by the defenders of this theory with regard to the phenomena of hybridity in the various races of man, and in various species of animals belonging to the same genus. It has been set forth as the most irrefutable proof of the unity of the human species, that hybrid productions of two different races of man are perfectly able to propagate themselves, while hybrid procreations of two species of animals of the same genus are said to be unable to do so; Broca, however, shows, 1st, that some of the hybrid productions from different races of man, possess only a limited power of propagation; and, secondly, that some hybrid species of animals, as those from the crossing of the dog and the wolf, the goat and the sheep, the dromedary and the camel, the hare and the rabbit, are perfectly able to propagate their species.—*Brown-Séguard's Journ. de Phys.*, vol. iii. 1860.

2. *Progress of Growth According to Age.*—Prof. QUETELET has established from his calculations the following positions as regards the inhabitants of Brussels: 1. The most rapid period of growth commences immediately after birth, the infant increasing about two décimètres in the space of a year. 2. The proportionate increase of growth then diminishes as age increases, until towards the fourth and fifth year, when the child attains its maximum of probable life. Thus, during the second year, the amount of growth is only one-half of that of the first, and during the third year about a third. 3. From the fourth to fifth year, the increase becomes pretty regular until towards the sixteenth year, *i. e.*, until after the period of puberty, the annual increase being about fifty-six millimètres. 4. After the age of puberty the growth continues to increase, though only feebly. Thus, from sixteen to seventeen years it increases four centimètres, and in the two following years two and a-half centimètres. 5. The total growth of man does not seem completely terminated at the age of twenty-five. M. Quetelet also found that the height of the inhabitants of the town exceeded that of the peasantry.—*Med. Times and Gaz.*, Jan. 4, 1862, from *L'Union Méd.*, No. 148.

MATERIA MEDICA AND PHARMACY.

3. *Tannin as a Substitute for Peruvian Bark.*—Dr. LERICHE, formerly attached to the dispensaries of the city of Lyons, recently published an interesting
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memoir on the antiperiodic virtues of tannin. This essay is well worthy of attention, and has been honoured with a prize by the Society of Medical Sciences of Brussels; the author accounts for the former failures of tannin in the treatment of periodic affections, by the insufficiency and minuteness of the doses prescribed by Dr. Chaussarel. In the experiments instituted in 1840, by this gentleman, tannin was exhibited in gradually increasing doses from ten to forty-five grains in six ounces of fluid, to be taken in tablespoonfuls every three hours during the apyretic interval. Now, M. Leriche considers that this dose is utterly insufficient suddenly to check the paroxysm with any degree of certainty, and cures the fever only when persevered in for a very long time. Hence the treatment becomes quite as expensive as if quinine had been resorted to, and the only advantage of the use of tannin, economy, is sacrificed.

In ague, whatever be the type of the fever, M. Leriche recommends the medicine to be given at the outset in doses of twenty to thirty grains, according to the degree of intensity of the disease, and to be taken three hours before the paroxysm. Two or three doses are usually sufficient to effect a cure, and it may be necessary to exhibit as much as one drachm or a drachm and a quarter at once. If the fever should not yield, fifteen grains only should be given in a mixture to be taken in tablespoonfuls every hour. M. Leriche has never seen this remedy fail in its effects. He has administered tannin in 144 cases, 10 of which were still under treatment when his work was sent to press; 154 patients had been entirely cured, and two of these were men who had recently returned from Algiers with the African fever.

The following are some of M. Leriche's most usual prescriptions: *Mixture*.—Aq. destil. 4 oz.; Aq. flor. aurant. 1 dr.; Acidi tannici, 15 gr. ad 1½ dr.; Syrupi, 1 oz. F. s. a.

To be taken in tablespoonfuls hourly, or in two doses a couple of hours before the paroxysm.

Powders.—Acidi tannici, 1 dr.; *Divide in chartulas* 8. Each powder to be taken in a wafer, in jelly, or dissolved in half a glass of sugar and water.

Syrup.—Syrupi, 16 oz.; Aq. flor. aurant. 2 oz.; Acidi tannici, 2 dr. F. s. a. Every ounce of this syrup contains about eight grains of tannin.

Enema.—Decocti hordei, 6 oz.; Acidi tannici, ½ dr.; Vin. opi, 8 min. F. s. a. The addition of laudanum increases the chances of this enema being longer retained.—*Dublin Med. Press*, Jan. 22, 1862, from *Journ. de Méd.*

4. *Anarcotine*.—In the *Indian Annals of Medicine*, for Sept. 1861, there is an elaborate and able report addressed by Dr. A. Garden, of Ghazepore, to the Deputy Inspector-General of Hospitals, on the therapeutic uses of anarcotine, tabulating in various forms the results of its employment in nearly 700 cases of intermittent fevers. Turning to our systems and dispensaries, we find it briefly noticed that this substance has been employed as an antiperiodic by Dr. Roots and Dr. O'Shaughnessy. This brief notice has, it appears, been wholly overlooked or neglected in this country; and yet, as we shall show, anarcotine possesses therapeutic properties well worthy of attention.

It is generally known, that one of the crystalline constituents of opium received from chemists the name of "narcotine," under an erroneous impression that it was the narcotic principle of that drug. So far from this being the case, it has not the slightest claim to that title; and, consequently, it is very properly proposed to prefix the privative letter *a* to the name, and henceforth designate it as *anarcotine*.

Referring to Sir W. O'Shaughnessy's original statement, we find him saying:—

"I have now employed the narcotine in sixteen cases of remittent fever, and such is my opinion of the efficacy of the remedy, that in instances of fever, intermittent and remittent, in ordinary healthy subjects, and in whom there is no complication of severe organic disease, I give it with the full expectation of arresting the next periodic return of the fever. I have seen the result follow in ten of the cases of the fever alluded to. I consider narcotine a more powerful antiperiodic than quinine. The remedy does not act silently. I have observed a degree of general heat follow its use in the first instance, and subse-

quently perspiration, so that it appears to excite in the system a salutary and powerful counteraction, as to stop the morbid concentration that issues in fever. I have not observed narcotine to lead to organic disturbance in the cases in which I have used it. In short, even from my scanty experience, I consider the remedy an invaluable one."

To his own testimony Sir William added the experience of several practitioners, who speak in the highest terms of its value as an antiperiodic, especially applicable—1st, in quotidian fevers; 2d, in cases complicated with visceral enlargements of the liver, spleen, &c.—or local inflammations, as of the bowels—or cerebral congestion; 3d, in cases of intermittents supervening upon surgical operations; 4th, after failure of quinine, or both quinine and arsenic.

Anarcotine is a white, inodorous substance, crystallizing in prisms, insipid to the taste, insoluble in cold and sparingly soluble in boiling water, more soluble in alcohol and ether, insoluble in alkaline solutions. It forms salts with the mineral acids which have a very bitter taste, similar to that of quinine. The sulphate and hydrochlorate are the most convenient for internal use. Anarcotine is obtained from the residue of opium left after separation of the morphia. Hence it ought to be a very economical medicine.

Dr. Garden's investigations, as recorded in the report alluded to, were directed to the therapeutic value and peculiarities and the commercial advantages of the use of anarcotine, and the conclusions he establishes are as follows:—

We have in anarcotine a remedy which fails in only 3.6 per cent. of all cases treated by it alone; and, without regard to the previous duration of the disease, and taking both quotidian and tertian agues, it arrests the fever on the whole average before the recurrence of a third paroxysm after the commencement of the remedy.

In small doses anarcotine acts as a tonic, increasing appetite and improving the tone of the system generally. For this purpose, from half a grain to a grain of the sulphate, combined with a slight excess of sulphuric acid, is a sufficient dose.

As an antiperiodic, a grain and a half to three grains or more, even to the extent of six grains, may be given at suitable intervals. Its most appreciable effect on the system is, that it increases the heart's action, raising the pulsations from ten to twenty beats per minute beyond the ordinary amount, and renders the pulse somewhat fuller.

In larger doses (five to fifteen grains) it produces increased heat of surface and diaphoresis, and sometimes disagreeable symptoms—nausea, giddiness, and vomiting. These, however, disappear on lessening the dose, in most cases. The author remarks, "In several cases I have obtained marked benefit by combining tincture of opium with the sulphate of anarcotine." "The only objection to the medicine is its tendency to produce constipation;" hence, before and during its administration, purges are necessary.

In reference to the relative economy of anarcotine and quinine, Dr. Garden's tables are full and conclusive. The average quantity of sulphate of anarcotine required to arrest intermittent fevers was found to be twenty grains for quotidiens, and something less than forty grains for tertians; whilst about sixteen grains were demanded during convalescence from both kinds for the re-establishment of health. If it fails in a small percentage of cases, this is not more than is experienced with quinine, to which it is nearly if not quite equal in therapeutic value as an antiperiodic.

As a matter of mere scientific curiosity, not of any present significance in therapeutics, we may add that organic chemistry separates anarcotine into four homologous bodies, which, by decomposition with caustic potash, yield homologous volatile bases:—

Normal anarcotine—yielding ammonia.			
Methylic	"	"	methylamin.
Ethylic	"	"	ethylamin.
Propylic	"	"	propylamin.

5. *Therapeutical Effects of Colchicum Autumnale in Rheumatism and Gout.*—The late Dr. Gourni, of Rennes, has left a posthumous work, in which he explains the experimental results which he obtained as to the action of colchicum, in a series of observations made upon his patients and upon himself. It has been generally believed that the efficacy of colchicum depends upon its purgative action, because the alvine evacuations often coincide with the disappearance of pain; but Dr. Goupil thinks that this view is founded upon a serious and dangerous error. He shows that when colchicum is taken in very minute doses, it sometimes happens that the pains cease without any evacuations having occurred; and as to the effect of purgatives administered in combination with colchicum, they tend to diminish its action rather than to increase it. He therefore advises the employment of colchicum alone, instead of the usual compound formulae. He considers that the real action of colchicum is that at first it irritates slightly the digestive passages, and afterwards produces symptoms which may be referred to the nervous system; it is then absorbed, circulates with the blood in all parts of the body, and on its return, or secondarily, it increases the intestinal, the urinary, and even the cutaneous secretion. If the drug has been taken in small and repeated doses, it may happen that the gout ceases without any evacuation by the bowels, but after a more or less abundant evacuation of urine or perspiration. As for the bad effects which are attributed to colchicum, such as metastasis of the disease, intestinal ulcerations, and death, Dr. Goupil thinks that some of the consequences are due to the medicines with which colchicum is often associated, and that when the drug is used carefully, and not given for too long a time, no unpleasant results are to be feared.—*B. and F. Med.-Chir. Rev.*, Jan. 1862, from *Archives Gén. de Méd.*, July, 1861.

6. *Therapeutic Employment of Olibanum.*—Dr. DELIOUX, of Toulon, thinks that olibanum has fallen into unmerited disuse, and that its employment would render great service to medicine. It belongs to the class of balsamic drugs, the most interesting therapeutical properties of which are that they modify certain pathological conditions of the mucous membranes, and that they moderate or dry up the vitiated secretions which those surfaces often pour out. The well-known effects produced by the balsams of Tolu and Peru, benzoin and tar, induced Dr. Delieux to inquire whether similar results might not follow the use of olibanum. He ascertained that the latter substance was equally efficacious with the other balsamic medicines, but that it was more applicable to hospital practice than the Tolu and Peru balsams, by its greater cheapness, and superior to tar by its being more agreeable to the stomach. He employs olibanum in the form of pills containing one gramme (about fifteen grains) as a medium dose, but it may be raised to four or even to eight grammes. He has also prescribed it as an emulsion, but this form has a pungent and aromatic taste which is displeasing to some palates. In the form of vapour, it has produced favourable results as a fumigating agent; sometimes incorporated as a powder with other substances, such as belladonna or stramonium, in cigarettes; sometimes thrown on an ignited body, in order that the odorous fumes may be inhaled by the patients. These fumigations were found serviceable in cases of bronchitis and chronic laryngitis, modifying or suppressing morbid secretions, and alleviating cough and pain.—*Bull. Gén. de Thérap.*, Feb. 28, 1861.

7. *Podophyllin as a Cholagogue.*—Dr. RAMSKILL has tried this remedy largely. He says that it is the most powerful cholagogue known, and is infinitely superior to any in the Pharmacopœia, more active and more certain. Granted there be any healthy liver structure remaining, it is certain to produce copious excretion of bile. It is a cathartic as well as a cholagogue, but its latter effect frequently precedes the former, as proved by occasional regurgitation into the stomach and vomiting of bile before its cathartic action has commenced. First, as to its mode of administration, he has, he states, never given more than half grain doses, and after numberless combinations, he finds the following most efficacious and kindest in action. For quick and aperient action, half a grain of podophyllin combined with an equal quantity of extract of Indian hemp, repeated every six or eight hours. Occasionally this dose

causes griping. A combination he more frequently uses consists of one-quarter of a grain of each with two or three grains of dried carbonate of soda. The podophyllin saponifies with an alkali, and is rendered very much more mild in its action. To give illustrative cases—where the arrested secretion of bile, or congested or sluggish liver, is a drawback to the progress of cure. In chronic dysentery, phthisis, cardiac disease, as well as in liver diseases proper, its good effects are equally manifest. Given with sedatives in small doses, it acts not only on the liver, but on the salivary glands, producing, like mercury, a copious flow of saliva, though unattended with the characteristic mercurial affection of the gums.—*Med. Times and Gaz.*, Jan. 4, 1862.

8. *Iodide of Potassium*.—This salt is one of the remedies which has of late steadily increased in general favour. This may, perhaps, to some extent be explained by the fact to which we have frequently adverted, that recent researches have proved many hitherto obscure affections to be really due to remote syphilitic taint. Although very valuable in some forms of rheumatism, and in procuring the absorption of inflammatory products generally, yet it is against the tertiary forms of syphilis that this salt best shows its specific power. Of late years the customary dose has much increased, and eight to ten grains is now with many of our Hospital Surgeons an ordinary prescription. Considering the enormous quantities which are prescribed both in Hospital and private practice and the rarity of any observable ill effects, it is quite clear that for the most part it exerts no evil influence. Wasting of the breasts and testes, the bugbears of former times, are now never heard of, and anything like iodism is certainly exceptional. The addition of ammonia to all mixtures containing the iodide of potassium is now a very common practice. We mentioned it some years ago as having been strongly recommended, amongst others, by Dr. Gull at Guy's and by Mr. Paget at St. Bartholomew's. Mr. Paget used to remark that he considered five grains of the iodide with half a drachm of sal volatile equal to ten grains of the iodide alone. With some Surgeons, and especially in the treatment of syphilitic diseases of the nerves or brain, the addition of tincture of nux vomica is frequently made.—*Med. Times and Gaz.*, Jan. 4, 1862.

9. *New Method of Administering Chloroform*.—Professor SIMPSON stated to the Edinburgh Obstetric Society (Nov. 14, 1862), that for some time past he had used chloroform in a manner somewhat different from that in which he was formerly in the habit of administering, and recommending it to be administered; and he believed that by the new method the patient was more rapidly anaesthetized, and at the same time a great saving was effected in the quantity of the drug employed. The difference in the two modes of administration consisted in this, that according to the old plan the fluid was poured upon a cloth folded into several layers, and the hand of the administrator had to be kept between the cloth and the patient's face, in order to insure the due access and admixture of air; while, in following out the new method, one single layer of a towel or handkerchief was laid over the patient's nose and mouth, taking care not to cover the eyes, and on this single fold the chloroform was poured, drop by drop, until complete anaesthesia was induced. There was little or none of the drug lost by evaporation when it was administered in this manner, for the patient inhaled it at the moment when it was poured on the cloth, and inhaled it mixed with a sufficient quantity of air, which was easily inspired through a single layer of any ordinary napkin. Dr. Moir had been long in the habit of administering chloroform in this way upon a handkerchief thrown over the patient's face. He (Professor Simpson) believed it would add to the safety with which the drug might be employed, to administer it in the manner he had described. He had often feared lest the lives of patients should be sacrificed by the careless manner in which, in particular, students and young practitioners sometimes applied the damp folded cloth over the patient's face, without admitting a sufficient supply of air; and he had no doubt that many of the deaths attributed to chloroform were due only to the improper administration of it, and were, consequently, no more chargeable on the drug itself, than were the many deaths resulting from accidental overdoses of opium, etc. But the dangers from care-

less and improper administration would be diminished if there were never placed over the patient's nose and mouth more than one single layer of cloth, moistened with a few drops of the fluid. The first patient to whom he had administered it in this manner had been chloroformed several times previously, and had never gone to sleep till an ounce and a half or two ounces of the fluid had been employed; but when administered drop by drop on a single layer of a thin towel, one drachm had sufficed to induce the most profound sleep. It had thus all the advantages that had ever been claimed for the complicated apparatus which some medical men were still in the habit of using. There was only one precaution to be attended to in employing chloroform in this manner, viz., care should be taken to anoint the lips and nose of the patient beforehand with oil or ointment, to prevent the skin from being injured by the contact of the fluid that resulted from the close application of the wetted towel to the patient's face.

Dr. Peter Young stated that he had recently administered chloroform in the manner described by Professor Simpson, to a patient in labour, and that he had kept her asleep for ten hours with only two and a half ounces of the drug.—*Edin. Med. Journ.*, Dec. 1861.

10. *Mode of Administering Cod-Liver Oil.*—Many persons are unable to keep down cod-liver oil, returning it several hours after taking it, even when they have taken it at the beginning of a meal, and strange enough, only vomiting it after the digestion of the aliments has terminated. M. DANNECY having been consulted by many inconvenienced in this manner, and who yet swallowed the oil without any repugnance, recommended them to take after each dose from eight to ten grains of calcined magnesia suspended in a small quantity of water. The success of the plan was most complete.—*Med. Times and Gaz.*, Feb. 1, 1862, from *Union Médicale*, No. 153.

11. *Clinical Experiments on some of the Extracts most commonly employed in Medicine.*—M. HIRTZ instituted a number of clinical experiments in order to determine the relative value of certain extracts obtained from different parts of the same plants. The extracts employed were those of aconite, belladonna, conium, digitalis, hyoscyamus, and stramonium; and the motive for making the experiments was the uncertainty which prevails as to the efficacy of a given extract, the difference in operation being due to the varying conditions in which the respective plants, or parts of plants, are employed. Thus the extract of aconite made from the leaves is without any therapeutical value; the stem of the digitalis is generally far inferior in efficacy to the leaves of the same plant; the extract from the leaves of hemlock is feeble in its operation, as conia (the alkaloid) exists only in small quantity in the green parts of the plant; and the extract of henbane made from the leaves is easily altered in its qualities and rendered inert.

Aconite.—The cultivated aconite does not contain any active principle, and in the wild plant this principle is almost entirely concentrated in the root, the powder of which is so acrid as to be almost insupportable to the eyes. M. Hirtz administered to patients in the hospital the extract of the leaves in doses of from half a gramme to a gramme (seven grains and a half to fifteen grains), generally without producing any physiological result; but the effect of the extract of the root was entirely different. A pill containing five centigrammes (a centigramme is .1543 of a grain) was given to a patient with asthma and emphysema, and half an hour afterwards he was seized with vertigo, partial blindness, dilatation of the pupil, extreme paleness, lipothymia, and fluttering pulse. In consequence of these dangerous symptoms, the extract was given to other patients only in the dose of one centigramme. Therapeutically it was found that cough, and particularly hooping-cough, was allayed by this extract, which appears to be superior in its action to belladonna.

Hyoscyamus.—While the active principle of aconite undoubtedly exists in the root, that of hyoscyamus certainly resides in the seeds, and, in fact, chemical analysis proves that *hyoscyamina* is found in greatest quantity in the latter parts. The extract of the leaves was given to patients in the dose of fifty to

seventy-five centigrammes a day, and the physiological effects were those usually described, as dilatation of the pupil and dryness of the throat; but these results were not only slightly marked, but they were rather inconstant, and even a gramme was sometimes given without their being observed. With the extract of the seeds, however, the phenomena were much better marked and more constant, and although only a centigramme was given at a dose, there were dryness of the throat, dilatation of the pupil, more or less complete blindness, paleness, and cold sweats. Therapeutically, the extract of the seeds was efficacious in phthysical coughs, and more efficacious than aconite in asthmatic attacks.

Belladonna.—While the active principle of aconite resides in the root, and that of henbane in the seeds, the active principle of belladonna occupies both those parts, and it is known besides that the berries of this plant are violently poisonous. It results, however, from analysis as well as clinical observation, that the extract or powder of the root is more active than that obtained from the other parts. In a therapeutical point of view, it was found that the prolonged use of the extract of the root of belladonna diminished the violence of some asthmatic attacks, and warded off the paroxysms in a considerable degree; the same remedy appeared efficacious in some cases of obstinate constipation in women, two centigrammes given in the evening being followed by an evacuation the next day; and in hysterical trismus the same remedy induced relaxation of the jaws in two cases after being employed for a few days.

Datura Stramonium.—The active principle of this plant resides chiefly in the seeds. The researches of M. Hirtz prove that there exists a great pharmacodynamic and therapeutical similarity between *datura stramonium* and *belladonna*. The therapeutical effect of stramonium in asthma was most remarkable when used in the form of segars; but when employed internally in the same disease it was no less efficacious, although less rapid in its action.

Digitalis.—The active principles of this plant reside chiefly in the leaves, and these are the parts employed for medicinal purposes. The observations of M. Hirtz confirm the views of other writers on the peculiar powers of this drug.—*Bull. Gén. de Thérap.*, Feb. 18, 1861.

12. *Solidified Creasote*.—The great fluidity of creasote frequently occasions much inconvenience when it is applied for caries of the teeth, and M. STANISLAS MARTIN, to obviate this, recommends the combination of fifteen parts, by weight, of the creasote, with ten of collodion. A gelatinous consistency is thus obtained, and this preparation has the advantage over simple creasote in forming a varnish which closes any orifices in the carious teeth against the access of air. "Creasote coagulates albumen, to which property is probably due its astringent and hæmostatic action. We believe that this new form of administration will allow of surgeons employing this body whenever they are in want of a stimulant agent combined with an isolating substance."—*Med. Times and Gaz.*, Jan. 4, 1862, from *Bull. de Thérap.*, vol. lxi. No. 11.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Diphtheria*.—The following views in regard to this widely prevailing disease, recently published by M. TROUSSEAU in his *Clinique Médicale de l'Hôtel-Dieu* (Paris, 1861), cannot fail to interest our readers.

"Diphtheria is *par excellence* a specific malady, contagious in its nature, manifesting itself both on the mucous membranes and on the skin, presenting the same characters in either locality. Diphtheria has, in truth, this in common with certain specific and contagious maladies, as the eruptive fevers and syphilis, but with this difference nevertheless, that it only affects the external integument on the condition that it be denuded of its epidermal covering." (p. 212.)

The most common form of the disease is that which specially favours the

pharynx and the air-passages. Known to and described by authors of past ages, it has served as the type for the *Treatise on Diphthérie* of M. Bretonneau.

The disease shows itself occasionally in the malignant form, destroying life by general blood-poisoning, after the manner of septic and pestilential maladies.

Pharyngeal or Simple Diphtheria is met with in all climates, at all seasons; sparing no period of life, it yet most frequently attacks young subjects. M. Trousseau gives this description.

"Commencing by a redness of the pharynx more or less well marked, by swelling of the tonsils, more frequently of one only, a whitish circumscribed patch soon shows itself, formed at first by a layer resembling coagulated mucus, half-transparent, which thickens itself, widens, and very rapidly takes on a membraniform consistence. This exudation in the first moments of its formation is readily detached from the mucous membrane, to which it only adheres by fine prolongations which penetrate into the muciparous follicles." (p. 315.)

The mucous membrane beneath the deposit is noted as usually sound, hardly presenting other alteration than slightly increased vascularity; ulceration of this structure is exceptional. After some hours, the pseudo-membrane begins to increase, the tinge deepening to a yellowish-white; it just covers one tonsil; then the uvula shares in the deposition; and later, the other tonsil with the posterior wall of the pharynx becomes involved.

The lymphatic glands at the angle of the jaw are swollen from the commencement, and are, therefore, valuable as aids to the diagnosis. Fever, at first sufficiently marked, soon subsides. The fetid odour from the mouth, and the grayish tint of the exudation, have led observers to the opinion that gangrene was present—hence various appellations expressing this belief. The professor in his wide experience has met with but three instances where actual gangrene existed.

The development of croup from exclusion of the disease to the larynx forms the most common ending of this form of the affection, as well in sporadic as in epidemic cases. M. Trousseau expresses a decided opinion that, in far the majority of cases of croup, the malady will be found on close inquiry and examination to have originated in the pharynx. It is specially mentioned, and the fact has, perhaps, met with too little attention when different plans of treatment have been compared, that "the difficulty of respiration is intermittent." This is a positive character of the affection—a part of its natural history, occurring whether the disease has been subjected to treatment or simply left to itself.

Malignant Diphtheria.—In this form of the disease exudation-patches appear on one or other tonsil, differing usually in no respect from the false membrane of ordinary pharyngeal diphtheria; sometimes they may present special characters, may exhibit a yellowish or reddish tinge, while the tissues beneath are often œdematous and of a livid red colour.

There is early and often even excessive swelling of the glands about the jaw; this forms one of the most serious indications of the malignant character of the disease. Erysipelatous redness of the skin over the swollen part is not unfrequently met with, giving the impression sometimes even that there must be deep-seated abscess.

There may be extension of the disease to the nares; and when this is the case, the result is almost always fatal.

M. Trousseau insists strongly on the blood-poisoning of this variety. Life is destroyed, not by any local manifestations, but by the effect on the system as a whole. The disease acts as a septic poison. In proof of these tendencies are noted the alteration in the physical characters of the circulating fluid, the extreme proneness to hemorrhages, waxy pallor of the skin (by no means, however, dependent on mere loss of blood), and the ultimate termination of the scene by syncope.

A section is devoted to the different situations which may be occupied by the false membrane; and the caution is strongly given by the author, that under no circumstances should the external cuticle be destroyed or removed. If this be done, a fresh nidus is at once afforded to the disease.

Whether, however, the simple or the malignant form be present, the essentials of the disease are the same; the one may generate the other, and the most simple case may give rise to another of the most malignant type.

M. Trousseau has no doubt whatever as to the contagious character of the affection.

A sketch of the paralysis consequent on diphtheria is then given. The paralytic condition may be *severe* or *mild*.

To trace the course of the latter form: the palate curtain is usually the first structure where the loss of muscular power is evident; coming on without warning during convalescence, the velum palati hangs pendent; direct excitation has no effect, nor is any movement induced by depressing the tongue, etc. When the limbs are affected, the sensibility is first interfered with; tingling and formication are the earliest symptoms; subsequently the motor power is found to be more or less at fault. The special senses are occasionally affected.

It would seem that the explanation must so far be found in the disturbance of the nervous system as a whole, consequent on the poisoning of the blood; the condition, therefore, parallel to what is sometimes seen after fevers, etc.

Treatment.—Although there be actual inflammation of the tissues involved, yet neither can the antiphlogistic treatment nor any of its modifications be employed with advantage. If such methods are resorted to, the only effect will be still more to reduce the already debilitated patient.

"Topical medication, despite the opposition with which it daily meets, is *par excellence* the treatment of diphtheria." (p. 404.)

Astringents and caustics have been resorted to from the earliest appearance of the disease.

Alum and tannin are of great value, blown on the throat in powder, or employed in solution. The more ordinary caustics, especially hydrochloric acid, are of essential benefit, applied early in the disease and with sufficient freedom. Should there be indications of commencing laryngeal affection, the local application of solutions of nitrate of silver to the upper part of the larynx, and to its interior even, may be employed.

The *general* treatment must be tonic and reparative. The administration of food will occupy the first place; frequent and liberal supplies. The forms of medicine of most value are quinine and preparations of iron, especially the perchloride and the syrup of the citrate or the tartrate.

Should extension of the disease to the air-passages take place in spite of whatever remedies may have been employed, there yet remains one important resource—*tracheotomy*.

On this point the testimony of M. Trousseau is of essential value. He has performed the operation (p. 414) more than two hundred times with success in more than one-fourth of the whole number of cases.

The operation is described at some length; the necessity of extreme slowness in the various steps is pointed out, and in every stage of the procedure there is a reference to some useful expedient.—*Brit. Med. Journal*, Jan. 11, 1862.

14. *Diphtheritic Paralysis*.—M. ROGER states that during the year 1860 there occurred 210 cases of diphtheria at the Hôpital des Enfants, and paralytic symptoms followed in 31 cases. The proportion was really greater, inasmuch as several of the children were removed from the Hospital prior to the period at which consecutive paralysis is usually developed, while others died before the period has arrived. M. Roger believes that the proportion of these cases is really a fourth or a third. These secondary paralyses are as rare in the other acute diseases of children as they are common in diphtheria. Thus, in 1860, among 61 cases of angina simplex, 12 of typhoid fever, 33 of rubeola, 12 of scarlatina, 4 of variola, and 24 of pneumonia, not an instance of secondary paralysis occurred; and the same negative results were observed in M. Blache's wards. Of 40 cases of diphtheritic paralysis which have come under M. Roger's notice, the most frequent ages at which they appeared were from 4 to 6, there being 21 female to 17 male infants. In almost all cases the paralysis has commenced by the pharynx and velum palati, as exhibited by the nasal twang and dysphagia. The establishment of a relationship between its occurrence and the gravity of the primary disease is not easy, although it would seem to be a proof of a greater amount of blood-poisoning. But, in fact, it is in the milder cases that these paralyses are found of most frequent occurrence; but this may be owing to the

rapidity with which death usually occurs in diphtheria. As to the relationship of the paralysis to albuminuria, often met with in diphtheria, M. Roger has not sufficiently examined the point, beyond being able to state that albuminuria is at all events not an essential concomitant. The usual period of the appearance of the paralysis is from the fourth to the eighth day, but sometimes dysphagia is observed from the beginning, while at others these secondary symptoms occur much later. Their mean duration is about a month. As a general rule the prognosis is not unfavourable, although in exceptional cases death has resulted from paralysis of the respiratory muscles, or sudden suffocation. For treatment, M. Roger recommends especially tonics, iron, sulphurous preparations, and the application of electricity.—*Med. Times and Gaz.*, Jan. 4, 1862.

15. *Guaiacum in the Treatment of Diphtheria.*—DR. J. W. WALKER, of Spilsby, extols the efficacy of guaiacum in the treatment of diphtheria. He calls attention to the three following salient characteristics of the disorder, each of which he says possesses a decided therapeutic indication, namely: "1. A more or less acute unhealthy form of inflammation affecting the faucial region, and which, if considered singly, would lead us to associate the complaint with common cynanche tonsillar. 2. The presence of the peculiar leathery exudation which again associates the disorder with canker, stomatitis, and other allied affections. 3. The great, often suddenly induced, debility and tendency to death by exhaustion, indicate the typhoid character of the complaint.

"For each of these several characteristics, our materia medica possesses a remedy of almost specific virtue.

"I have long looked upon guaiacum as a specific in common sore throat; for, no matter in what place, what the age, sex, or condition of the patient, or what the stage of the complaint, I have always administered it, and had reason to be satisfied with the result; indeed, I consider the effect of this remedy in such cases to furnish an example of cure as distinguished from treatment. (*Vide* Dr. Latham's lectures.) Frequently have I seen cases of cynanche and diphtheria existing at the same time and in the same family, and I was first induced to give guaiacum in the more severe affection by observing its good effects in cases which, at the onset, were supposed to be examples of common sore throat. I now unhesitatingly consider guaiacum as the remedy *par excellence* for diphtheria. The presence of the peculiar exudation almost instinctively suggests the employment of the chlorate of potash. For the debility, etc., our sheet-anchors are ammonia and bark.

"My prescription for all cases of diphtheria is the following: *R.* Potassæ chloratis $\mathfrak{z}\text{iv}$; tincturæ cinchonæ comp. $\mathfrak{z}\text{ss}$; tincturæ guaiaci comp. $\mathfrak{z}\text{ss}$ ad $\mathfrak{z}\text{vj}$; mellis q. s.; aquæ ad $\mathfrak{z}\text{viij}$. *M.*

"Of this mixture from one tea to two tablespoonfuls may be given, according to age; but the interval between each dose, from one to four hours or three times a day, must be regulated according to the severity of the case.

"These, then, I consider the therapeutic essentials in the treatment of diphtheria; but, in a complaint so terrible, it behooves us to resort to every possible adjuvant, however slightly it may contribute to the general good; and under this heading I am disposed to place all topical applications. My plan is to apply (by no means frequently) a concentrated solution of nitrate of silver, believing it to hasten the removal of the exudation, and to induce a more healthy action over the denuded surface. Of gargles, I consider weak vinegar and water, or what is more elegant, dilute acetic acid with infusion of roses, to be as good as any, producing slightly stimulant and astringent effects on the parts, and washing away offensive detached particles. Externally, warmth applied after the manner of poultices, of which a bag of chamomile-flowers is as convenient as any, together with mild terebinthinate embrocations applied two or three times a day, are to be recommended. Like most of my fellow-practitioners, I avoid mercurials; and, should the bowels require moving, castor-oil or the milder laxatives suffice.

"The diet should be nutritious, with an increasing allowance of wine from the first. Lastly, we should ever be on the alert to remove as far as practicable the primary cause of the complaint by attention to every sanitary particular."

16. *Action of Steel upon Phthisis.* By RICHARD PAYNE COTTON, M.D., Physician to the Hospital for Consumption, Brompton.—The following observations upon the action of steel, were made upon twenty-five in-patients of the Consumption Hospital. As in all my preceding experiments, I studiously avoided any selection of cases, and excluded only those in which the disease was obviously too far advanced to render any kind of treatment available, and those in which there existed some complication which would tend to negative the result.

Of the twenty-five patients ten were males and fifteen females. Six were in the first, six in the second, and thirteen in the third stage of the disease. Ten were under the age of 20, and the rest were between 20 and 40 years of age.

I selected the old *vinum ferri* as being the most simple of the many forms of iron, as well as one which is seldom objected to, and is rarely found to disagree. At the commencement I prescribed two drachms twice a-day, each dose being gradually increased to half an ounce, and in some few instances to an ounce. The treatment was continued for periods varying, according to the different cases, from four to thirteen weeks. In two or three of the female patients, the steel seemed to cause slight headache, which, however, gradually disappeared when the dose was lessened or temporarily discontinued. During its use, the patients' appetites were usually very good, and there was not the slightest indication of increased liability either to hæmoptysis or any other active symptom of the disease.

Of the twenty-five patients, thirteen *greatly* improved; three *slightly* improved; and nine derived *no benefit*; of these, three died in the Hospital.

In thirteen of the cases cod-liver oil was occasionally but not regularly taken in conjunction with the steel; but in the remainder, no other medicine was administered except some simple linctus for the cough. Fourteen patients increased in weight—some of them very considerably; eight lost weight; and three remained unchanged in weight. Nine of the fourteen cases in which the weight increased were of those who had taken cod-liver oil. One of these patients, in the second stage of the disease, illustrated the remarkable but not very rare phenomenon, of increasing in weight, whilst both the local and many of the general symptoms of consumption were steadily advancing.

Of the thirteen patients *greatly* improved, several left the Hospital with their general health restored, and their active symptoms dissipated. Four were especially remarkable for the improvement they exhibited, being able, in spite of the unmistakable existence of pulmonary cavities, to resume their several pursuits on leaving the Hospital.

Seven of the thirteen improved cases were under the age of twenty—a large proportion, if we consider the respective ages of the patients.

Perhaps I may here remark, that although I had not hitherto compared and tabulated the cases I have treated with steel wine, I have long been in the habit of prescribing this medicine, in conjunction with cod-liver oil, to phthisical and strumous patients, especially to children and young persons, and have always placed great faith in its efficacy. I have, indeed, always considered it amongst the most useful remedies in this class of diseases; and in this homage to the *vinum ferri* very many of my medical brethren will doubtlessly join. That the remedy fairly deserves to be thus estimated, is, I think, sufficiently shown by the experiments I have detailed.

After I shall have recorded similar observations upon a few other substances which are now undergoing probation in my Hospital wards, I hope to give a general summary of their comparative results. And, although I am quite willing to admit that any conclusion at which I may arrive in the course of these experiments must necessarily be imperfect, and at most but an approximation to truth—considering that, in order to reach the actual truth, many insuperable difficulties present themselves, such as a want of uniformity in the cases, circumstances, and stages of the various patients, as well as in the season of the year, the diet, and a multitude of other circumstances—it will, I think, be nevertheless conceded, that the trial to which I have subjected the different remedies is not altogether unproductive, and that on the present occasion steel wine comes before us very favourably as a medical agent in the treatment of phthisis.

In order, however, to assimilate this paper with those which have preceded it, I would record the following conclusions :—

1. Steel wine is a very useful auxiliary in the treatment of a considerable number of consumptive patients.

2. It seldom disagrees, but tends rather to increase the appetite, and improve digestion.

3. It is especially valuable in the cases of children and young persons.—*Med. Times and Gaz.*, Dec. 14, 1861.

17. *External Application of Iodine to Remove Plastic Exudations in Pleurisy.*—M. DELIONX uses, for the removal of plastic exudations following pleurisy, frictions with an ointment composed of iodine, two parts; iodide of potassium, eight parts; and lard, thirty parts. The skin being made perfectly clean, friction with this ointment must be made over the affected part for five minutes every morning and evening; a layer of cotton-wadding is then applied, and covered by oiled silk, the whole being secured by a bandage round the body. The application produces more or less cutaneous irritation; and, where this is severe, the remedy must be discontinued—but for as short a time as possible. M. Delionx has employed this treatment with success in a score of cases of intrapleural exudation, some dependent on acute pleurisy, others being instances of a chronic exudative pleurisy. The duration of the treatment has varied from fifteen days to two months: in the acute cases, from fifteen to twenty days have generally been sufficient for the removal of the false membranes. The iodine thus applied is absorbed; M. Delionx and M. Castain found it in the urine.—*Brit. Med. Journ.*, Jan. 4, 1862, from *Bull. Génér. de Thérap.*, 30 Sept. 1861.

18. *Sulphuric Acid Mixture in Diarrhœa.*—DR. ANDREW CLARK highly extols the efficacy of sulphuric acid in diarrhœa. He claims to have cured by it, given in the manner prescribed below, 74 per cent. of cases of diarrhœa within 48 hours.

When the stools are scanty and frequent, the administration of the acid is preceded by a dose of castor oil. When they are abundant and watery, the acid is begun at once: R.—Acid. sulph. aromat. $\mathfrak{m}\mathfrak{x}\mathfrak{x}$; tinct. camph. comp. $\mathfrak{z}\mathfrak{j}$; ætheris chlorici $\mathfrak{m}\mathfrak{x}$; spirit. menthæ pip. $\mathfrak{z}\mathfrak{s}\mathfrak{s}$; syrupi rhæados $\mathfrak{z}\mathfrak{j}$; decoct. hamatox. ad $\mathfrak{z}\mathfrak{j}$.¹ To be given every four, five, or six hours, according to the urgency of the diarrhœa. The object of the aromatics in the formula is the correction of the fecal fermentation which is one of the chief conditions in the production of diarrhœa. In some cases the second or third dose succeeds in checking the disease, and then the patient is troubled for a day or two with pinching pains in various parts of the bowels. These are best relieved by a small dose of castor oil with an aromatic. The acid is rarely successful in advanced phthisical or dysenteric diarrhœa, but it is so in the early stages of these complaints.—*Med. Times and Gaz.*, Jan. 4, 1862.

19. *Podophyllin in Constipation.*—DR. ANDREW CLARK considers no single remedy to be so free from the objections which attach to most laxatives as podophyllin. It is not a specific for constipation, and it is not in all cases free from some of the objections attached to other remedies. But in the great majority of cases of simple constipation, it fulfils the conditions required of a safe and effectual remedy, by operating slowly, easily, and after the manner of Nature.

Podophyllin² is an amorphous resinoid powder, obtained by evaporation from an alcoholic solution of the root of the May apple (*Podophyllum Peltatum*.) In America it is used in ten-grain doses as a cathartic, of similar characters to the resin of jalap; but for use as a natural laxative, the maximum dose is one grain. If more than this is given, it produces griping and loose stools. For most persons a grain is too large a dose. It is better to begin with half-grain doses made into a pill with extract of taraxacum, which must be taken during breakfast, that it may operate next morning after that meal. For the first few days, the

¹ Or, if the mixture is to be kept, some aromatic water.

² Made by Davenport, of Great Russell-street, Bloomsbury.

operation of the drug may be accompanied by a little griping and by unformed stools. Should these continue to the fourth day, administer only quarter-grain doses, and combine them with an equal quantity of ipecacuanha. If after, the drug does not operate in the manner described, it is not likely to prove successful, and had better be relinquished. When the right dose is determined, its use may be continued without fear of injurious consequences; and instead of requiring to be increased, may after a time be diminished without affecting the success of its operation.—*Med. Times and Gaz.*, Jan. 4, 1862.

20. *Oxalate of Cerium in Epilepsy*.—Dr. RAMSKILL has used oxalate of cerium lately at the Hospital for the Epileptic and Paralyzed. He says it has proved serviceable in some cases of epilepsy, having as an aura, or premonitory symptom of the attack, some commotion of the stomach or duodenum evidenced by a feeling of agitation at the epigastrium, accompanied by a sense of sinking, fainting, and disordered movement, but unconnected with palpitation. In three cases, which we shall give shortly, the epilepsy was cured. It has not proved useful in any degree in any other forms of epilepsy, where the premonitory symptoms had relation to the head, as vertigo, confusion, etc., nor to the heart, as palpitation, or feeling of cessation of the heart's action, nor, indeed, to any other variety except in the one mentioned, which seems, he believes, to have its origin in failure of action of the splanchnic ganglia. He thinks that the oxalate acts as a sedative and conservator of nervous force. The sedative action acting on the periphery of the pneumogastric, conveys this influence to the grand centre of excito-motory action, the medulla, and thus not only prevents an impending attack, but diminishes the chance of future fits by lessening morbid excito-motor sensibility.—*Med. Times and Gaz.*, Jan. 4, 1862.

21. *Efficacy of a Combination of Cubebs and Copaiba in some Affections of the Neck of the Bladder and of the Prostatic Part of the Urethra*.—Dr. CAUDMONT has employed cubebs and copaiba in different affections of the neck of the bladder and of the prostatic portion of the urethra, and the results have convinced him that these medicines exert a much more certain action over these parts than over the anterior portion of the urinary canal. In some cases, he administered the copaiba alone, in other cases the cubebs alone; but in general he combines these two drugs, because it appeared to him that the digestive organs were more tolerant of their administration in this form. The morbid conditions in which these medicines are indicated, may be referred to forms of neuralgia or inflammation. The neuralgic cases begin suddenly, without being preceded by any functional disturbance, and the symptoms are immediately very severe; there is frequent desire to make water, severe pain during that process, and especially at its conclusion, and darting pains along the inferior surface of the penis during the intervals of micturition. This neuralgic form occurs in persons who are subject to neuralgia in other parts of the body. The other class of cases presents an inflammatory character, and a few drops of blood are voided at the end of each act of micturition. The greater number of such cases may be referred to a blennorrhœal or rheumatic origin, and the urine deposits gravel, or contains a considerable quantity of mucus or muco-pus. In all these cases, whether neuralgic or inflammatory, the use of copaiba and cubebs is very successful, and entirely removes the pain in from twenty-four to forty-eight hours. Dr. Caudmont administers these medicines in the form of sugar-plums (*dragées*), each containing forty centigrammes of the mixed cubebs and copaiba (a centigramme is .1543 of a troy grain), and fifteen, eighteen, or twenty-four of these are given every day, according to the intensity of the disease.—*Brit. and For. Med.-Chir. Rev.*, Jan. 1862, from *Bull. Gén. de Thérap.*, July 30, 1861.

22. *Cubebs in Simple Urethritis of Women*.—Prof. TROUSSEAU remarks that simple urethritis is a disease which is tolerably frequent in young girls, but more frequent in married women, and it is characterized by a frequent desire to make water, with severe smarting during micturition, and vesical tenesmus lasting some minutes afterwards. Trousseau has known patients obliged to go to the water-closet ten or fifteen times in an hour, and after having passed a few drops

of urine they went on straining for a minute or more, so imperious was the sensation of desiring to evacuate the bladder, which, however, was perfectly empty. In some cases, it would appear that the inflammation is propagated to the mucous membrane of the bladder. Trousseau has never found this disease to assume a serious form, and it is seldom accompanied with fever, but there are often pains in the loins and hypogastrium analogous to those observed in cystitis and metritis. Urethritis is rather common after lying-in, after miscarriage, or at the period of menstruation, and in some cases it appears to be connected with an herpetic diathesis. Whatever may be the exact form of this disease, cubebs are successfully employed in its removal. Trousseau has employed this treatment for more than twenty years, and the use of cubebs was suggested by its efficacy in venereal blennorrhagia. In simple urethritis it is not necessary to give large doses of cubebs, and in general the powder may be prescribed in the dose of ʒss to ʒj, twice a day, at meals. It should be continued several days, and as long as the symptoms last; when improvement begins the cubebs are given only once a day for a week, and in the following week, if the improvement continues, the cubebs are given only once every second day.—*Ibid.*, from *Bull. Gén. de Thérap.*, July 15, 1861.

23. *Poisoning by Opium treated by Belladonna.*—A man who had drunk about an ounce and a-half of laudanum came under Dr. MOTHERWELL'S treatment at the Melbourne Hospital, deeply comatose, and with the pupils contracted to pin's head size. Doubting the propriety of treating this description of case by keeping the patient in constant motion, and the employment of galvanism, and desirous of testing the reputed antagonistic action of belladonna in overdosing from opium, Dr. Motherwell prescribed the tincture in such quantities that the patient had taken eleven drachms and a-half in less than three hours. Effectual dilatation of the pupil did not take place until then, the patient rapidly recovering from the effects of both poison and remedy. This case being a solitary one, and the laudanum having been taken fourteen hours before the the belladonna was begun, nothing very conclusive can be drawn from it; but Dr. Motherwell, in another case of opium poisoning, would not hesitate to prescribe still larger doses of belladonna, rousing the patient occasionally, or applying the cold douche for a minute or two when the coma was profound.—*Med. Times and Gaz.*, Jan. 4, 1862, from *Australian Medical Journal*, Oct. 1861.

[The preceding case tends to confirm the observations of Dr. C. C. Lee (see No. of this Journal for Jan. 1862, p. 54) as to the antagonistic effects of opium and belladonna. A very remarkable case has lately occurred in this city, an account of which we are promised for our next Number, which we conceive to be very conclusive as to the same fact. In this case *seventy-five* grains of morphia were swallowed with suicidal intent, and the patient, after taking *fifty* grains of the best extract of belladonna, recovered.—EDITOR.]

24. *On some Affections of the Cæcal Portion of the Intestines, with illustrative cases.*—Dr. REED read an interesting paper on this subject before the Royal Medical and Chirurgical Society (Jan. 14, 1862), the principal object of which was to bring under the notice of the Fellows the four subjoined cases, which present some remarkable features of a practical nature; it was deemed to be superfluous and misplaced to enter upon the diagnostic signs of the several abnormal conditions with which lodgments or accumulation, together with their results, in the cæcal portion of the intestinal canal, might possibly be confounded; but it might be stated, in speaking of diseases of the intestinal tube, that two conditions are recognized—the one resulting from an excessive accumulation of intestinal contents at some particular part of its course, as the primary cause; the other, as commencing in the structure of the intestine itself, apparently independent of any accumulation or lodgment; and to these a third may be added, resulting from formations that take place exterior to the intestinal tunics, but occasionally influencing the diameter of its canal and its functions. The most reliable signs of lodgment or accumulation in the cæcal portion of the intestine are of a local character; and it is essential to bear in mind, that pain without the coexistence of other symptoms, is not to be depended upon, as in

obstruction in the left iliac region pain is frequently referred to the right side or umbilicus. A local tumour can generally be detected, with defined margins, painful on pressure, from which the pain seems to radiate, and which may depend on simple distension only, or upon inflammation in the tunics of the canal, varying in degree from the most simple to the most severe stages of inflammation and its results. The habit of the patient, and the previous history of each case, are important in forming the diagnosis. If accumulation merely exist, the obvious remedy is to unload the distended bowel; and this is best accomplished by the use of the warm hip-bath, and by small and frequently-repeated doses of the watery extract of aloes, in the form of pills, with soap, combined or not with calomel, or, in some asthenic cases, with extract of *nux vomica*, if not contra-indicated. In cases where this object is effectually accomplished, the impending inflammatory stage is not developed; but should this not be the case, the inflammatory complications and consequences are, in the opinion of the author, best treated as briefly detailed in the subjoined cases:—

Case 1.—A. B., aged 18, the son of a gentleman residing in Surrey, being in perfect health, and having no hereditary tendency to disease. In the evening of August 12, 1858, he ate a large quantity of unripe plums. During the night, having pain in his bowels, he took some strong purgative medicines, which acted very violently, dislodging a great many plum-stones. Mr. Nowell Stowers, of Kensington, saw him the following morning. He was suffering from constant tenesmus, and severe pain in the bowels of a colicky nature, especially in the right iliac region. On the evening of the following day I saw the case, and subsequently attended in consultation with Mr. Stowers. There was a distinctly defined swelling, about the size of a small orange, in the region of the cæcum, dull on percussion, and painful on pressure; febrile symptoms, with diffused peritonitis, came on, but no sickness. For some days subsequently the swelling increased considerably in size, and the general symptoms became much aggravated. Tympanitis, hiccup, and prostration ensued, and liquid muco-feculent evacuations, tinged with blood, passed frequently. The treatment consisted of calomel and opium, given in small and frequently-repeated doses. Opiate suppositories were used, also turpentine stupes, succeeded by warm fomentations and poultices; perfect rest in the prone position; fluid animal and farinaceous diet, all solids being prohibited. On the fifth day the patient showed evidence of being slightly under mercurial influence, and from this date the symptoms gradually diminished in intensity; but a solid swelling, about four inches in circumference, remained in the right iliac region, painful on pressure. Blisters, iodine, and mercury were applied locally, and various measures to support the strength. At the end of three weeks he was allowed to sit up in a chair. After an action of the bowels it was discovered he had passed a portion of intestine, about ten or twelve inches in length, without pain, or being himself aware of any unusual occurrence. He was again strictly confined to the recumbent position, with fluid farinaceous diet only for a considerable period. Eventually he entirely recovered, and is at the present time in perfect health, three years having elapsed. The preparation exhibited consists of the portion of intestine voided, being about ten inches of large intestine, together with the cæcum and vermiform appendix; of the former only about one-third of the calibre of the canal, while the entire tube of the appendix is present. It has been given to the Royal College of Surgeons for the Museum, where no preparation of a similar kind exists.

Case 2.—A. J., aged 14, a healthy girl, in April, 1846, was suddenly seized with pain in the right iliac region, her bowels having been previously very constipated. She took some strong aperient medicine, which produced no effect. I saw her the following day. Being a very nervous, hysterical girl, the early diagnosis was rather masked, but the abdomen appeared distended and painful. After a warm hip-bath and a copious turpentine enema the bowels acted twice freely. Subsequently, frequent doses of calomel and opium, leeches, followed by a turpentine stupe, perfect rest in the recumbent position, and restriction to fluid nourishment, were prescribed. On the following day the abdomen was less distended, and a defined tumour, painful on pressure, about three inches in extent, and dull on percussion, was readily felt in the region of the cæcum. The in-

flammatory symptoms became gradually more severe, and on the fourth day she appeared to be approaching a state of collapse. The calomel and opium was discontinued, and stimulants were substituted. She rallied under this treatment. On the eleventh day, a portion of intestine, six or seven inches in length, was voided per anum—apparently colon. Severe dysenteric symptoms followed, controlled by sulphate of copper and opium, no solid food being allowed. After an anxious period of some weeks, she gradually recovered, and has continued well to the present time.

Case 3.—A. B., aged 20, a strong, healthy young man, on rising from bed, quite well, early in the morning, ate hastily several unripe apples. About four hours afterwards he was seized suddenly with intense pain in the right iliac region, and forthwith took some aperient medicine, which acted freely. I was requested to see him a few hours afterwards. He was lying on his back, with his right thigh bent, and complained of extreme pain in the region of the cæcum, increased on firm pressure. No local tumour could be detected. He had vomited the meat breakfast he had eaten, and had an anxious look. He indicated the exact spot where, he said, "he was sure some part of an apple had stuck"—in the region of the cæcum. The pain rapidly increased, acute inflammation set in, with tympanitis, and he died in great suffering on the fourth day. Bleeding, leeches, calomel and opium, the latter in large doses, turpentine stupe, warm poultices, perfect quiet, with fluid nourishment only, constituted his treatment generally. On examination, general abdominal inflammation was found to have existed, but most intense and advanced about the cæcum, which appeared to have been loosely connected congenitally, and was, together with the vermiform appendix and about four inches of intestine (ileum), invaginated in the ascending colon. In the interior of the cæcum, a portion of the core of an apple, about one-third of an inch, was firmly imbedded in the free margin of the ileo-cæcal valve, and was with some difficulty removed from its bed.

Case 4.—A lady, aged 23, very healthy, on the 17th of November, 1849, was seized suddenly with violent pain in the right iliac region, and was attended by a medical gentleman, who prescribed leeches and other remedies. I was requested to see her the same day, and learnt that the bowels had been habitually very constipated during the previous month. There was no hernia, but a distinctly defined tumour, dull on percussion, in the region of the cæcum. On examination by the vagina, the tumour could with difficulty be reached; but the right ovary was readily detected, distinct, and much larger than ordinary. Calomel-and-opium, in small and very frequently-repeated doses, was ordered. Turpentine stupes, succeeded by warm poultices, to the abdomen, and also a large turpentine injection, which dislodged a quantity of hardened feces, were prescribed, with perfect rest, and fluid nourishment only. The symptoms of inflammation became more severe and diffused; the local swelling increased considerably, attended with most acute pain in the hip, so much so that the patient attributed all her disease to the hip-joint; œdema of the whole thigh, leg, and foot to a great extent followed; and all the symptoms became so aggravated that she appeared *moritura*. The gums showed evidence of mercurial action, and she was able to take fluid nourishment and stimulants *ad libitum*. Sir Charles Locock and Dr. Fergusson saw the case about this date in consultation with me. Shortly afterwards an abscess evidently was forming, and pointing just above the middle of Poupart's ligament. Her state appearing almost hopeless, no satisfactory relief having taken place from the upper bowels for nearly three weeks, a large enema of gruel with turpentine and ox-gall, was administered, and in half an hour nearly two chamber-vesselsful of most offensive fecal accumulation passed per anum, followed by great prostration; but she rallied under the use of large quantities of stimulants. The pain in the hip and œdema gradually subsided from this period. After five weeks from the commencement of her illness the abscess burst externally; a large quantity of offensive pus, mixed with fecal matter, was discharged, and continued daily. A fistulous opening with the cæcum apparently became established, more feculent matter passing by this outlet than per anum. Her condition varied for a long period. At length she was well, excepting the fecal fistula, which was most loathsome. After eight months from the commencement of her illness, Sir

Benjamin Brodie saw the case in consultation with me, and advised her having a couch made so as to be recumbent on her face night and day for several months; one-drachm doses of powdered cubebs were administered twice a-day, and the edges of the wound touched with nitrate of silver. Her general health improved. The position on the face gave so much relief that she strictly followed the treatment. After five or six months the discharge ceased entirely, and within twelve months she was perfectly well, and has continued so up to the present time.—*Med. Times and Gaz.*, Jan. 25, 1862.

25. *On Certain of the Early Symptoms of the Eruptive Fevers.* By Dr. SEE.—To say that a child is about to have an eruptive fever, and to announce beforehand that the disease will be measles, scarlatina, or smallpox, is a point of great interest, if not for the child, at least for the practitioner. It is the surest means of acquiring, from the first, the confidence of the family, for there is no doubt that people think more of the accuracy of the diagnosis and prognosis of a physician, than of all the care and intelligence he may have shown in the treatment of the case. "Let us see, then," said Dr. See, "what are the prodromata of the eruptive fevers of which the observation is important."

A character common to the eruptive fevers is the suddenness of invasion, accompanied by a peculiar state of precordial anxiety, as pointed out by Borsieri. In typhoid fever the invasion is preceded by a lengthened period of discomfort; the child has lost its gaiety, and is fatigued without cause; this state lasts for several days.

Scarlatina is sometimes ushered in by symptoms which simulate cholera. Six months ago Dr. See was sent for to see the grandchild of a physician, who, at two o'clock in the afternoon, had been seized with choleraic symptoms. Dr. See could not see the child till half past five o'clock. By this time, however, the eruption of scarlatina was manifest. Had the physician arrived sooner, he would not have seen the eruption, but he would have examined the throat, and would infallibly have found the angina which always precedes and accompanies scarlatina.

Measles does not give rise to vomiting, which, however, is a premonitory symptom of scarlet fever and smallpox. If then there is vomiting, and no affection of the throat, examine the arm. If the vaccination cicatrix be well marked, there is every chance that the smallpox will be mild. One of the constant precursors of smallpox, and on which Professor Chomel always laid great stress at his clinique, is pain in the loins. Also examine the back, for it is there that the first spots of smallpox make their appearance. In smallpox, also, the fever is continuous. In measles the premonitory fever is often remittent, or even intermittent. You have seen a child in the evening, feverish; next morning he seems lively, you are told that he has taken food, and you go away fancying that the little attack has passed off; then the fever returns, and soon other symptoms announce that the child is about to have measles; these other signs are the lachrymo-nasal catarrh, which appears about the third day. It may be said that influenza presents the same symptoms. No doubt, the resemblance is pretty close. There is remittent fever, subject to exacerbations, and towards the third day the nose and eyes are affected. But to remove all doubts, it will be sufficient to auscultate the chest. If the disease is influenza, you will find already (by the third day) the signs of bronchitis; whilst if you have to do with measles, the results of the examination will be negative. In fact, it is on the fourth day that a child who has had a remittent fever, followed by a lachrymo-nasal catarrh, is seized with the characteristic cough. This cough, with its muffled sound, sometimes suggests to the parents the idea of croup, or hooping-cough. It is neither one nor the other; it does not come on in paroxysms. As in influenza, it consists of separate coughs closely following one another, and which continue till the eruption makes its appearance.

One word on a complication which may render the diagnosis of certain eruptive fevers obscure. The scarlatina eruption sometimes appears within the first six hours, rarely later than twenty-four; but it sometimes happens that smallpox is preceded by a scarlatiniform eruption, which has been especially described

in England. This rash is sometimes limited to the belly. But even here there is no room for doubt. The rash does not appear till the second day, and if you examine your patient minutely from head to foot, you will find, especially on the back, some spots of smallpox. In fact, when the rash is present, the smallpox eruption has already commenced. Twice, a distinguished physician of Paris compromised his reputation by announcing scarlatina, while Chomel found, by examining the back, that he had to do with cases of smallpox.—*Edinburgh Med. Journ.*, Dec. 1861, from *Journ. de Méd. et de Chirurg. Prat.*, Oct. 1861.

26. *On the Temperature, Urea, Chloride of Sodium, and Urinary Water in Scarlet Fever; and on a Cycle in Disease and Health.*—Dr. SIDNEY RINGER presented a paper with this title to the Royal Med. and Chirurg. Soc. (Jan. 28, 1862). The observations were made on patients in the Hospital for Sick Children, under the care of Drs. West, Jenner, and Hillier. Thirty cases are given. The temperature, taken several times during the day, is given in charts. The urea and chloride of sodium were estimated daily by Liebig's volumetric method. The observations extended over a variable time, in some cases till the forty-fifth day of the disease.

I. *On the Temperature.*—1. This fell, in the great majority of cases, on either the fifth, tenth, or fifteenth day of the disease. 2. When the temperature remained high till the fifteenth or the twentieth day, a fall of variable intensity occurred, usually on each of the preceding fifth days—namely, the fifth, tenth, and fifteenth. The temperature after each fall in some cases remained during the subsequent five days, at the same point reached on the preceding fifth day; in other cases it rose again, reaching during the second or third five days a point as high as it did during the first five. 3. Each fall of the temperature is accompanied by an improvement in the state of the patient, which remains permanent when the temperature does not again rise. 4. Of seventeen cases that came early under notice, the average maximum temperature was a little above 103°. 5. Subsequent to the great fall experienced on the fifth, tenth, or fifteenth day, the temperature often remained rather too high over a variable time, in some cases for fifteen days. The degree of elevation varied, in some cases being between 100° and 101°, but more frequently between 99° and 100°. This elevation of the temperature also usually experienced a fall on each fifth day. 6. This subsequent elevation of the temperature, if of any persistence, was coincident with a continuation of the lesions produced by the scarlet fever, as sore-throat, etc. It sometimes preceded an attack of Bright's disease. 7. At a variable period after the scarlet fever, another elevation of the temperature occurred, due either to Bright's disease, endocarditis, tuberculosis, or chicken-pox; in two cases the cause could not be ascertained. 8. The date of the second elevation varied; thus, counting from the commencement of the scarlet fever, in albuminuria the mean of six cases gave the twenty-second day; in two cases in which the elevation was probably due to endocarditis, the elevation began on the eighth day; in one case of chickenpox it commenced on the sixth day; in one case of tuberculosis, on the ninth. 9. The duration of the elevation due to the above causes varied from two to thirteen days. 10. This subsequent elevation of the temperature due to intercurrent disease always fell either on a fifth day from its own commencement, or on a fifth day from the commencement of the scarlet fever. 11. Thus the temperature forms arcs or cycles, lasting in the majority of cases five days; this equally applies to the temperature of the scarlet fever, or of any subsequent intercurrent disease. 12. In severe cases the temperature remained at the same point throughout the day; in slighter cases it fell in the morning and rose during the day; this fall in the morning is one of the earliest signs of improvement. 13. The hour of the day at which the temperature reached its highest point varied greatly. It was most frequently at its highest at some time between 2 P. M. and 8 P. M.

II. *On the Urea.*—1. The urea appears to suffer no increase during the fever. 2. The amount of urea for many days after the decline of the fever is far below the amount normal to the patient. 3. From the above, the author thinks it probable that the kidney is affected from the commencement of the attack, and

the elimination of the urea thus checked. In some of the cases the children were puffy about the face, without any blood or albumen occurring in the urine; this perhaps was caused by the retention of urea. 4. On the interoccurrence of Bright's disease, the urea in some cases was greatly diminished; in other cases no diminution occurred.

III. *On the Chlorides*.—1. The chlorides were never found absent in any of the cases analyzed. 2. Their amount was always much diminished during the fever days. 3. After the fall of the temperature the chlorides increased gradually. 4. In one case in which Bright's disease supervened the chlorides were estimated; they suffered very little diminution.

IV. *On the Urinary Water*.—Often during the fever there is no diminution in the amount of urinary water; in some cases it is increased.

V. *On the Albumen in the Urine*.—1. The albumen appears at two different periods: (a) during the fever days; (b) later during the non-fever days. Out of twenty-one cases, it only appeared once during the fever days. Of eighteen cases which were in the hospital for a considerable time, in seven albumen appeared during the fever free days. 2. The time of its appearance varied from the ninth to the twenty-third day. 3. The duration of the albumen in the urine varied from three to forty-nine days. 4. There is no necessary connection between the intensity of the inflammation (tested by the elevation of the temperature) and the duration of the albumen in the urine. 5. There is no necessary connection between the intensity of the inflammation and the amount of albumen in the urine.

VI. *On Blood in the Urine*.—1. There may be an elevation of the temperature, due probably to inflammation of the kidney, without any blood in the urine. 2. In no case did blood appear without previous elevation of the temperature. 3. In some cases the blood continued long after the fall of the temperature, and thus probably after the decline of the inflammation.

VII. *Relationship between the Blood and Albumen in the Urine*.—1. A very large amount of albumen may occur in the urine without any blood. 2. Blood to a very large amount may occur in the urine with the slightest trace of albumen; and if the blood-corpuscles be allowed to settle, the supernatant fluid may give no evidence of albumen. These cases given were seldom dropsical; they, however, often looked puffy in the face. In some cases the second elevation of the temperature due to Bright's disease was not followed even by puffiness. In one case the patient was puffy, without any other indication of Bright's disease.

VIII. *On a Cycle in Disease*.—In the cases given, the temperature did not run an equable course, neither remaining at the same temperature throughout; but formed cycles, composed of a variable number of days, each cycle, however, being composed of the same number of days in the same patient. The cycles in the great majority of cases were composed of five days.

IX. *On a Cycle in Health*.—The author tries to prove from the cases given, that in health we have a daily and a five days' cycle of tissue change. He further tries to show that in fevers we have a great increase of this daily and five days' cycle of tissue change, from which results the great elevation of the temperature.—*Med. Times and Gaz.*, Feb. 15, 1862.

27. *Influence of Lactic Acid upon the Endocardium and in the production of Rheumatism*.—VIRCHOW notices the experiments of Dr. Richardson in which he seeks to prove directly what Prout had originally supposed, which Williams and Todd had also conjectured—that the accumulation of lactic acid in the body was the cause of rheumatism. He also alludes to the observations of Schenlein, of Joseph Meyer, and of an anonymous writer, "A. W." on the same subject.¹ He remarks that none of the German observers, in their experiments, had found that rheumatoid affections of the limbs had been produced, and Virchow suggests that possibly in certain cases in which it was supposed that such had been artificially produced, the appearances were the result of

¹ Götting. gelehrten Anzeiger, 1859, st. 168, s. 1638.

injury to the joints occasioned in the necessary operation of binding the animal's limbs.

It was, however, quite different with regard to the influence of lactic acid upon the endocardium. On this point the observations of Richardson had been abundantly confirmed by late experimenters. In eight cases in which Rauch had injected lactic acid into the jugular and abdominal veins, changes in the endocardium, and gelatinous thickening of the valves, were produced; and even eight hours after injection into the jugular veins these effects were found. Rauch, who had minutely examined the thickened and swollen granular parts of the valves, takes exception to the statement of Richardson, that it was the result of an exudation. He found, as Virchow had often previously found in the human subject, that it consisted of a soft muco-like tissue, with an increase and growth of the connective-tissue corpuscles, which at a later period undergo fatty changes, and that an epithelium existed. He concluded that the influence of the lactic acid was exercised not upon the free surface, and this especially as the right side of the heart was not much affected.

Dr. MÖLLER looks upon the swelling and redness found at the edges of the valves as a post-mortem phenomenon, and says they do not occur in animals examined directly after death. Both Rauch and Möller found in some cases a want of rhythm in the heart's movements and systolic bruits. Möller considered the murmur to be anæmic, whilst Rauch attributed them to an affection of the valves.

Dr. G. REYHER, encouraged by Virchow, was led to undertake a series of examinations of the hearts of dogs which were killed without having had lactic acid injected into them. These dogs were of every age up to nineteen years old, were killed in the speediest possible way by prussic acid or the blowing of air into the jugular veins, and their hearts were examined as quickly as could be. On opening the very first heart of an apparently healthy dog, the author found that the very same anatomical changes in the heart's valves existed as Rauch and Richardson found after their injection of lactic acid. Thirty-two dogs were sacrificed in all, and similar changes, in a greater or less degree, and evidently of various dates, were universally found, except in foetal hearts. Moreover, in one dog, in which the writer had during life injected a solution of lactic acid (according to Richardson's directions) into the peritoneal cavity, and which died twenty hours after, on examination after death the results of a *chronic* endocarditis were found, but nothing like the remains of any acute endocarditis. The various conditions of the valves and their appendages, as displayed after death in these dogs, are minutely given, and their development, as it were, traced from the simplest up to the most decided form of alteration. Moreover, the microscopical characters of the altered valves and new formations are elaborately given in detail, sections as well of the fresh structures as of prepared parts having been carefully examined. For these general and minute descriptions we have not room in this place. In conclusion, from the observations of the author, the following are interesting:—

1. That dogs, and probably also many other mammalia, are not so free from pathological changes in the heart as is supposed, and consequently that great caution is necessary in drawing inferences from such experiments upon these animals. (Dr. Albaum also found in the hearts of young horses, cats, and rabbits, similar changes to those found by the author in the dog.)

2. That in all the thirty-two apparently healthy dogs whose hearts were examined, the changes observed were "identical" with those described by Richardson and Rauch as the result of lactic acid injection, and called by the latter "parenchymatous endocarditis."

3. As Richardson and Rauch have not sufficiently avoided sources of error (owing to neglect of the examination of healthy dogs), their investigations are of no value in support of the supposed origin of endocarditis from the injection of lactic acid into the peritoneal cavity or jugular veins.

4. Consequently, that endocarditis arises from an accumulation of lactic acid in the blood remains un-proven.—*Brit. and For. Med. Chir. Rev.*, Jan. 1862. from *Virchow's Archiv.* Bd. xx. and xxi.

28. *Diabetes Mellitus—Lesion of Fourth Ventricle.*—An interesting case of this is related in *Gazette des Hôpitaux*. The subject of it was a young man, 29 years of age, in the wards of M. Tardieu at the Lariboisière. The malady with its insatiable thirst commenced in 1859, and at its outset was accompanied by symptoms of nervous disorder. Weakness of the left side of the body was perceptible; the patient limped, or rather dragged the left leg; he noticed that the left arm and hand had lost power, and moreover that sensations of creeping occurred in the extremities. The nervous symptoms abated at the end of three months, but the diabetes, in spite of treatment, held on its course. The vision then became affected, and the existence of partial atrophy of the papilla was revealed by the ophthalmoscope, and eventually the patient succumbed to tubercular consumption. At the post-mortem examination, a marked congestion was noticed in the root of the fourth ventricle, towards the "calamus scriptorius," and the calibre of the neighbouring bloodvessels was found to be more voluminous than in the normal condition. No actual disorganization of the cerebral substance was detected. The congestion, as above described, is referred to by M. Luys as the first stage of diabetic cerebral alteration.—*Lancet*, Feb. 15th, 1862.

29. *Fatty Diarrhœa Attending Diabetes, or Pimelorrhœa.*—M. BOUCHARDAT describes a symptom attending diabetes, to which he gives the name of pimelorrhœa (πυμέλῃς, fat, ῥέω, I flow). It sometimes happens that, after the quantity of urine has been reduced even to the normal standard, the general health of the patient continues impaired. This is generally attributable to loss of appetite, or insufficient or improper nourishment; but sometimes, even though the appetite and the food be apparently good, there are irregular, frequent, and abundant alvine evacuations. Many diabetic patients have obstinate constipation, accompanied periodically by very copious alvine dejections, and sometimes by bilious vomiting, followed by extreme prostration. M. Bouchardat relates, in illustration, the case of a diabetic patient under his care, whose urine had become normal in quantity and quality. A large amount of starchy food was taken; and still the patient became daily more weakened and emaciated. On examining the stools, which occurred five or six times in twenty-four hours, M. Bouchardat found them copious, black, with little odour, and of semisolid consistence. At the time when they were discharged, a large quantity of oil floated on them, and became solid in cooling. The fat evacuated consisted of oleine, margarine, and stearine, with traces of cholesterine. This discharge of fatty matter took place in spite of the removal, as far as possible, of all fat from the food. On several occasions, however, M. Bouchardat succeeded in diminishing it by reducing the supplies both of fat and of starchy matters in the food, and by ordering regular and energetic exercise. The patient's occupation, however, being sedentary, prevented him from carrying out the instructions fully; and he died after a severe attack of diarrhœa. M. Bouchardat believes that this fatty diarrhœa attending diabetes results from the exaggerated transformation of the starchy materials into fat; and that it is only a transformation of diabetes or glycosuria. In diabetes, the sugar is carried off by the urine; in pimelorrhœa, the fat is removed by the intestines. The symptoms in both forms of disease are the same, only they are more violent in pimelorrhœa than in diabetes.—*Brit. Med. Journ.*, Dec. 21, 1861, from *Bull. Gén. de Thérap.*, 15 July, 1861.

30. *Laryngoscopy.*—Dr. LEWIN, of Berlin, made an interesting communication on this subject to the Medical Section of the Congress of German Naturalists and Physicians at their late session. The author introduced his subject by stating that it was not difficult to understand why laryngoscopy should have so quickly found admittance into the practice of medicine, as by its means we are able to recognize diseases of organs, which had hitherto been inaccessible to direct observation, and the morbid changes of which have not only a direct and immediate interest as far as they are concerned, but are also important as frequently reflecting diseases of remote organs, such as the lungs, the heart, and even general dyscratic disorders; besides, we may by the same means succeed in per-

forming local applications, and even surgical operations, which had been all but impossible before.

After having demonstrated his laryngoscope, which is in many respects superior to that of M. Czermak, Dr. Lewin proceeded to describe the appearance of the pharynx, larynx, and the trachea in the living body, and the best method of investigating the condition of these organs. He first considered in detail the vocal cords, which are in many persons, especially in professional singers, unusually red without being diseased. They undergo considerable changes in the mild and severe forms of acute catarrh, in which we either find them covered with disseminated spots, or they present a most intense redness throughout. Sometimes a strongly distended vein is seen to run parallel with the free inner edges of the vocal cords. In two cases of this kind which came under the notice of Dr. Lewin, the medical attendant had diagnosed croup on account of the cough and dyspnoea; but the affection consisted of a true specific inflammation of the vocal cords, which appeared quite bloody, and a speedy cure by local applications was brought about. In chronic catarrh, the colour of the vocal cords becomes also much changed, and the mucous membrane thickened. Granulations and excrescences are also formed upon them, which may be quite similar to those caused by syphilis. The changes of the voice are of a different character, according to the spots affected and the intensity of the disease.

Ulceration in consequence of catarrh has never yet been observed in the vocal cords. If there is great loss of substance, the patient is generally either syphilitic or tuberculous. The differences between the syphilitic and tubercular ulcers are in many cases so considerable that from them alone a correct diagnosis of the constitutional distemper is possible, without any regard to the other symptoms. The extent of the ulcers and the cicatrices, and the places occupied by them, determine the nature of the changes of the voice.

Amongst the disturbances of mobility to which the vocal cords are liable, the chief are abnormal tension, with unsymmetrical movements of the arytenoid cartilages. This may be congenital or acquired. Dr. Lewin related an interesting case of the former, in which hoarseness and a sort of intermittent whooping-cough was hereditary, in consequence of this affection. In other cases the movements of the vocal cords are insufficient, so that they do not approach the median line in an equal manner. The cause of this affection may be in the cords themselves, or in the neighbouring parts, as, for instance, the vocal processes, the posterior wall of the larynx, and the arytenoid cartilages. In several cases Dr. Lewin has by removing impediments to a free motion of the vocal cords, succeeded in effecting a complete and rapid cure of hoarseness and aphonia of very long standing. Paralysis of the vocal cords also occurs; and it affects either the dilatators or the constrictor of the glottis, so that there is stenosis or insufficiency. The causes of the paralysis are either central or peripheral, acting upon the recurrent nerve. It may be due to extravasation, softening and tumours in the brain, or rheumatism, aneurism, infiltration of glands and muscles, or hepatization of a portion of the lungs. Amongst the different forms of aphonia, Dr. Lewin described that caused by poisoning, by hysteria, by reflex action, and by diphtheria. In all these cases the change of voice is different, according to whether one or both cords are affected and whether the paralysis is complete or incomplete; there is then either complete aphonia, or more or less considerable hoarseness, or the voice has merely a nasal timbre, which latter may be due to paralysis of one vocal cord, paralysis or infiltration of the soft palate and impermeability of the nose. This is often accompanied by difficulties of deglutition.

The tumours which occur on the vocal cords may originate from catarrh, syphilis, and scrofula, and are generally of a benign character. According to their site and size they cause alterations of the voice, or cough and a sensation of pressure, or of the presence of a foreign body, excessive secretion of mucus, dyspnoea, and even suffocation. Such growths as are provided with a pedicle are more dangerous, but also more easy to remove.

2. Dr. Lewin then described the diseases of the arytenoid cartilages, viz., hyperæmia, swelling of the mucous membrane by infiltration; if it appears in

yellow specks, it is a sign of tuberculosis being present. Ulcers occur on the upper as well as the lower surface of the cartilages; granular degeneration of the mucous membrane is also not rare. Swelling indicates a perichondritis of the vocal process. The fold of mucous membrane between the two arytenoid cartilages is of great importance. If this is diseased, spasmodic reflex phenomena are induced, as vomiting, difficulty of deglutition, spasm of the glottis, etc.

3. The posterior wall of the larynx is often affected by thickening and ulceration, but rarely by tumours in the mucous membrane. The ulcerations are often important for the diagnosis between syphilis and tuberculosis, even when auscultation and percussion of the chest gives unsatisfactory results. If, therefore, the diagnosis between these two diseases is uncertain, laryngoscopy must be resorted to.

4. The ventricles of Morgagni are important by their modifying the voice; and morbid changes occurring in them may cause hoarseness. They are sometimes affected with swellings and tumours of the mucous membrane; polypous excrescences are frequent, and generally caused by local irritation, as fish-bones, etc., but they also follow measles and scarlatina. In old persons there is a peculiar dilatation of these ventricles, probably in consequence of atrophy of the mucous follicles, with drying up and rarefaction of the mucous membrane.

5. The epiglottis is not unfrequently affected by inflammation, oedematous infiltration, ulceration, and softening. Ulceration may be caused by syphilis, tuberculosis, and scrofula. In several cases of advanced phthisis, Dr. Lewin has observed almost total destruction of epiglottis—which is a very ominous symptom.

6. The ligamentary- and glosso-epiglottica are often affected by inflammation and superficial ulceration. This latter often causes difficulties of deglutition and obstinate cough, which resist all general treatment, but are speedily cured by local applications. In syphilis and scrofula, Dr. Lewin has seen extensive destruction of the *foveæ glosso-epiglotticæ*. Syphilitic excrescences are by no means rare there, and in one case a mulberry-shaped tumour of this kind caused asthmatic fits, by pressure on the epiglottis.

7. The root of the tongue often shows considerable changes of the follicular glands, which are sometimes swollen and infiltrated, especially if syphilis or scrofula is present.

8. The posterior wall of the pharynx is subject to different forms of inflammation which may be distinguished as follicular, submucous, exulcerating, hyperplastic, and varicose. Follicular inflammation is chiefly caused by catarrh, and frequently combined with abdominal plethora. Ulcerative inflammation is not always caused by syphilis; nor can the cicatrices, which are sometimes observed, be always considered as the last remnants of a venereal process. Varicose pharyngitis is often the cause of hemorrhage, which is generally confounded with hemorrhage from the lungs. Hyperplastic inflammation may cause asthmatic symptoms.

9. In certain cases it is possible to see the trachea up to its bifurcation. The morbid conditions of the trachea, as may be distinguished by means of the laryngoscope, are dilatation, especially in marastic old persons, where there seems to be atrophy of the parts, and also in asthma and bronchiectasy; hypertrophy of the mucous follicles of the posterior wall of the trachea, stenosis of this organ, either by thickening of its mucous membrane, or by pressure from cancer of the œsophagus, or by other tumours of neighbouring parts, and finally ulceration.

10. In syphilitic patients the posterior surface of the palatine arches may be ulcerated. These are also subject to paralysis. If they are thickened and the tonsils hypertrophied, the local application of chromic acid effects a cure. By this means Dr. Lewin has completely removed forty-four hypertrophied tonsils which had resisted excision. Great caution is, however, necessary in this operation, in order to avoid chromic acid being swallowed; this is easily prevented by the physician fixing the tongue of the patient with two fingers.

In conclusion Dr. Lewin reverted to the fact that polypus of the larynx, which before the introduction of the laryngoscope into the practice of medicine, generally caused sudden death, might now be easily recognized and removed. Laryn-

gloscopy ought to be resorted to in all diseases of the pharynx and larynx, as in hoarseness, difficulty of deglutition, sore-throat; in cases of foreign bodies in the n rial passages, and also in tuberculosis and syphilis. It is often the only means by which we are able to decide whether a hemorrhage comes from the larynx, pharynx, or the trachea. In spasmodic vomiting, in diphtheria, and in obstinate cough, it is also advisable to employ the laryngoscope, as we may thus often find a palpable cause of the disease, and which it is then easy to remove. *Med. Times and Gazette*, Jan. 18, 1862.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

31. *Excision of the Hip-joint*.—M. LEFORT, one of the rising French surgeons, who has paid more attention to what is going on in other countries than is usual with his countrymen, recently laid before the Academy of Medicine the results obtained by the English and German surgeons from the performance of the operation of excision at the hip-joint. The cases, the particulars of which he was enabled to collect, amount to 85 in number. Of these, the results are doubtful in 13 instances, in consequence of their too early publication; of the remaining 72 cases, 42 are returned as successful, while there were 29 deaths and 1 relapse, due to suppurative osteitis. The cases are considered as successful, provided that life was saved, and the wound cicatrized; but the amount of motion possessed by the false joint, together with that of the solidity of the limb and power of using it in walking, are only specified in some cases. In 27 out of the 42 successful cases, at all events, these points are satisfactorily made out as highly favourable. In 67 cases the ages were specified, and it is found that between the ages of five and nineteen that there occurred 17 deaths in 49 cases; and between the ages of twenty and fifty, 7 deaths in 18 cases. In 30 of the cases the acetabulum, as well as the head of the femur, was excised; and in 3 of these the result is uncertain, recovery taking place in 15, and death in 11, of the cases.

M. GOSSELIN, the reporter on this essay, points out how desirable it would be to have more exact information as to the precise amount of unaided usefulness obtained in this last category, in order to be able to compare the functional condition of such limbs with that of those of patients who have recovered from hip-joint disease without operation.

The reporter, in explanation of this operation not having as yet become adopted by French surgeons, suggests that either hip-joint disease is a less dangerous affection in France than in other countries, or that its earlier stages are more successfully treated in the former country than elsewhere. His observations apply, however, only to the young subjects met with in private practice, the treatment of which cases is often very successful; while that of the far more numerous cases of hospital patients is less encouraging. Then, again, French surgeons have been deterred by the contra-indications to the operation furnished by the concomitance of pulmonary tubercle, or other fatal complication in the severer forms of hip-joint disease, by the repugnance manifested by the friends of the patients, and by the ill-success which attends great operations in the Paris hospitals, chiefly due to the prevalence of purulent infection. Lastly, the difference in the practice of the French as compared with that of foreign surgeons, may be also due to the too great proneness of the latter to resort to the knife before essaying other means of treatment, while the former have remained in ignorance of the results really due to operative procedures executed elsewhere than in France.

A section of M. Lefort's paper is devoted to a consideration of the applicability of this operation after gunshot wounds. Reasoning from analogy, both he and his reporter admit that it may be preferable to disarticulation of the

femur; but the comparative statistics of the two operations are in too imperfect a condition to determine which operation has proved least fatal. M. LARREY, speaking to this point, is unwilling to entirely discountenance excision in comminuted fracture from gunshot wounds, but in truth he can scarcely indicate the case suitable for its employment; for while, on the one hand, in the case of moderate injury by a small projectile, it is far safer practice to remain contented with the removal of the shattered fragments of bone, so again, in the case of great devastating injury, resection would prove an insufficient procedure. With respect to the application of this operation in disease of the hip-joint, he agrees with the reporter, basing his conclusion upon the numerous cases he has met with among young soldiers, that the disease is frequently curable, or its effects so much to be mitigated, as to render operations unadvisable. He believes that some of the English cases might have been otherwise treated with advantage, an opinion shared also by some English surgeons of great repute; and he thinks that the information supplied as to the power of using the limb in the cases of patients said to have recovered, is lamentably deficient. He also fears that resection of a diseased joint may become the immediate cause of the development of latent tubercular disease. Still he thinks that the operation should not be absolutely excluded, its performance being confined to the cases of adults debilitated by long-continued suppuration, in which other means proved of no avail, when diathetic or other contra-indications do not exist.

M. MALGAIGNE hit upon the truth of the matter when he stated that it is not so much the more favourable character of the results of the French mode of treating these cases, as it is the repugnance for the adoption of new operations—that is, although he did not say as much, when recommended *ab extra*. Thus, notwithstanding their success in other parts of Europe and America, resections of the knee are still prohibited in Paris, fatal though amputation of the thigh always proves there: and resection of the elbow has only become recognized after a desperate struggle. Not that routine has anything to do with this, adds M. Malgaigne, but an excess of prudence, which he assures us is a characteristic of French surgery—a fact which it certainly required so eminent an authority to vouch for. However, this paper of M. Lefort he regards as a step in advance towards the recognition of the possibility of resection of the hip being sometimes useful; but he insists upon the necessity of a greater exactitude in distinguishing the exact character and degree of the lesion it is adapted for. M. Velpeau declared that, so far from the subject of resection having been ignored in France, that is just the country in which its merits have been best and most effectually discussed—a statement that might well astonish his auditors. That it has not been there adopted arises from the fact of the French surgeons being better physicians, and having more confidence in other means of treatment, succeeding in curing cases which elsewhere would have been subjected to the knife. He does not believe that the disease so frequently proves fatal, as it is stated to do in England and Germany. Even in cases which resist the ordinary means, the operation would be a questionable procedure, seeing the common results of great operations in Paris. If, however, it is a fact that they succeed better in the English hospitals, this does not arise from the different regimen adapted and the better hygienic condition of these hospitals, but is due to the fact of the “English flesh” being gifted with a kind of physiological privilege which renders it more refractory to the accidents following operations!—*B. and F. Med.-Chir. Rev.*, Jan. 1862, from *Bull. de l'Acad.*, t. xxviii, and *Gaz. Hebdom.*, Nos. 42, 46, 49.

32. *Double Amputation for Injury of both Arms—Recovery.*—Dr. GEO. BUCHANAN relates (*Glasgow Medical Journal*, Jan. 1862) the following comparatively rare case.—

John O., aged 43, was admitted to ward 10 of the Glasgow Royal Infirmary on the 11th of January, 1861. He stated that, about eleven o'clock the same day, the beam of a crane fell on his arms, which were stretched out before him, causing the present injuries. The left arm was found to have sustained a compound comminuted fracture a little below the elbow, the fractured ends of the

bones were protruding, and the muscles and soft parts were completely destroyed. The right hand was smashed up to the wrist joint, the bones fractured, and the skin and muscles reduced to a confused pulpy mass. There was a scalp wound on the back of the head about three inches long, the bone uninjured. The right knee was slightly bruised. The man would not consent to immediate amputation, but at 8 P. M. a consultation was called, when he agreed to submit to what was necessary. Dr. B. removed the right arm immediately above the wrist, and the left just above the elbow. Both stumps did remarkably well; but the recovery after such a combination of injuries was necessarily tedious. Dr. B. saw him in October last, and he had great freedom of motion and power in both arms. He wears a hook on the right stump; the other is quite sound, but he has not yet got any apparatus adjusted to it.

33. *Amputation of the Tonsils in Diphtheria.*—A few years since M. Bouchut proposed the excision of the tonsils as a means of treating the early stages of diphtheria, regarding the disease as at first a local one which may be destroyed *in situ*, but which left to itself would give rise to a secondary infection of the economy. Several practitioners have followed out this recommendation with good success, and now Mr. PAILLOT communicates the particulars of three cases, occurring during a severe epidemic which ravaged the commune of Noyers in 1860, and in which he performed excision with a successful result. The tonsils were covered with false membranes, as were—in one of the cases—the whole of the pharynx and the velum; but on the extirpation of the tonsils, false membranes ceased to be reproduced.—*Med. Times and Gaz.*, Jan. 4, 1862. *Comptes Rendus*, vol. liii. No. 18.

34. *Strangulated Femoral Hernia in a female aged ninety-five years.*—Mr. R. HARPER, of Holbeach, records (*Lancet*, Jan. 11, 1862) a case of this in which he operated with success.

35. *Accidental Removal of the greater part of the Lower Jaw.*—Dr. John Struthers communicated to the Royal Medico-Chirurgical Society of Edinburgh (Nov. 20, 1861) a case of the above accident, the particulars of which had been placed in his hands by Mr. Joux THOMPSON, of Perth, Western Australia, where the accident had happened.

The subject of the case was a farm labourer, aged 19, who while ploughing, Sept. 26, 1857, fell in consequence of the bullocks he was driving taking fright, and one of the animals sprang over him. "The next instant the plough (apparently the coulter) caught him in the throat and dragged him upwards of twenty yards before the animals could be restrained. On being taken up, the lower jaw was perceived to be nearly torn from the face, and otherwise very much injured. He opened his eyes about five minutes afterwards, and appeared quite sensible, and subsequently continued to be so.

"A lacerated wound extended from the right mastoid process across the throat to nearly the left angle of the jaw; this at its posterior origin had entirely divided the whole breadth of the sterno-mastoid muscle; from the right angle of the jaw to near the chin it divided the floor of the mouth. It was also met by an oblique laceration from the left commissure of the lips, which had quite torn through and divided the cheek.

"The inferior maxilla was fractured on both sides, on the right more than half way up the ramus; on the left obliquely from the last molar tooth to the angle of the ramus. The bone thus broken and torn out of the face was very much denuded of soft parts, and at each fractured extremity was, to some extent, laid bare of periosteum, particularly at the right. It was only attached at the chin in front, and to a small extent at the concavity behind. The mass thus produced by the bone, cheek, and chin, lay dangling towards the left shoulder, the whole presenting a most frightful aspect. The tongue was not at all injured. There was said to be much bleeding when the accident took place at 9 A. M., but little or none on admission about 2 P. M. Pulse weak.

"From the extent to which the broken maxilla was denuded of soft parts, it

was vain to attempt the replacing of the bone, and, accordingly, excision was proceeded with, which was easily accomplished by dissecting round the chin, and by a few strokes of the scalpel separating the attachments behind. A few vessels required ligatures. A piece of lint was laid along the cavity of the mouth, and the parts brought together by a few stitches where the cheek was divided from the angle of the mouth downwards. But as it was impossible, from the very rugged and torn state of the wound, for the gash across the neck to unite by first intention, it was only drawn slightly together and left to slough. The whole was now covered with lint, bandaged, and the patient removed to bed. He had some wine and water, which he managed to swallow with difficulty, and soon fell into a doze. Bowels were moved in the evening, but confined. To have wine and water *ad libitum*.

"27th. Has been rather restless during the night, but looks better than he did yesterday, and so far as he can be understood is free from pain. Has a great deal of thirst, although not so urgent as during the night. Slight appearance of discharge from the wounds, except across the neck, which is very black and dirty-looking. A gutta-percha splint was moulded and fitted on, in order to support the chin and other soft parts deprived of the support of the lower jaw. A good deal of the liquids he attempts to swallow escapes through the wound in the floor of the mouth at right side of tongue. Pulse 90, and of fair strength. *Vespere*.—Has slept a little. Right cheek beginning to swell; bowels not been moved. Pulse 93, same as before. Had to-day beef-tea, milk, $\frac{3}{4}$ wine. To have, in the morning, $\frac{3}{4}$ ol. ricini.

"28th. Required drink from time to time during the first part of the night; remained pretty quiet from 3 A. M. Right cheek now swelled to a considerable extent so as to close the eye. Wounds discharging, especially from the cheek and cavity of the mouth, and have a good deal of fetor. Wound along the right side of neck has much the same appearance, and gapes greatly. Some union appears to be taking place in the wound running from the angle of the mouth and towards the left extremity of the laceration across the throat. The lint in the cavity of the mouth adhering too firmly for removal. Wounds syringed out with weak sol. sodæ chlor. Patient raises himself in bed with considerable freedom, and sits, while being dressed, with wonderful ease. Liquids put to the back of the tongue by means of a bent tube, and little or none escapes. Pulse 96, tolerably good strength. The medicine acting rather too briskly. To have pulv. opii gr. j; continue beef-tea, etc. etc. *Vespere*.—Bowels still acting from oil. Has taken some sago. Pulse 89.—R Tr. opii gtt. xxx, vin. ipecac. gtt. x, ft. haust.

"29th. Passed a good night; bowels acted slightly twice. Moves himself about with great alacrity. Wounds look, generally speaking, remarkably well. Swelling a little increased. Suffers little or no pain. Got some of the lint removed from the mouth, and syringed the wounds with sol. zinc. chlor.; fetor very strong. Neck dressed with lint wet with sol. sodæ chlor. *Vespere*.—Continues very well. Pulse 76. Same diet.

"From this time he continued to go on well, and the report of Nov. 3d is as follows:—

"There is still pus issuing from the small opening perpendicular with the fractured ramus, but to no considerable extent. He has the use of the muscles that were divided, though in some it is partial. The thickening of the cheek does not appear to reduce very rapidly, and it will doubtless remain in its present state for a considerable period. The right side of the face is very much paralyzed; the wrinkles of the forehead are entirely obliterated, exactly half-way across the brow. He cannot shut the right eye, neither has he the power of altogether closing the mouth; but the latter defect may arise to some extent from the thickening that exists at the right commissure of the lips.

"As he was anxious to leave the hospital, he was discharged. The man was seen two years afterwards, and at that time he was well and strong.

"Dr. Struthers exhibited the preparation of the separated bone. It embraced the entire horizontal portion of the jaw, and more than the half of the ramus of the right side. This ramus had been fractured obliquely backwards and downwards, from the root of the coronoid process to the middle of the posterior

edge. On the left side the fracture extended obliquely across the angle, from behind the socket of the second molar tooth to just in front of the posterior part of the angle of the jaw. The lines of fracture were rugged, but there was no splintering of the bone.

"Dr. Struthers remarked that he was not aware of any case in which so much of the lower jaw, or in which the entire horizontal portion, had been removed by the surgeon without a fatal result. In one case, first one side of the jaw had been removed (by Mr. Ferguson), and subsequently the other side (by Mr. Spence), but the symphysis had been left. Also one side of the bone, with the symphysis and fore part of the other side, had been removed; but a considerable part of the remaining ramus was left, which would assist materially in keeping up the tongue. In none of the few cases in which it had been tried had the operation of removal of the *whole* lower jaw been successful. A principal danger appeared to be the falling back of the tongue over the superior glottis, causing choking. This the operation of tracheotomy might obviate. As the symphysis is the great connection of the tongue, the part to which it is fixed up by the genio-hyoid and genio-hyo-glossi muscles, the removal of this, together with both sides of the jaw, inevitably loosens the tongue, and leaves it constantly in danger of falling down, until new adhesions are acquired. But if the sides of the jaw are left, or one of the sides, the connection of the tongue thereto through the mucous membrane would assist in keeping the tongue forward. In this case, however, it is remarkable that the symphysis and both sides had been torn off, and yet, although no surgical assistance was at hand, choking had not taken place. And the case would seem to show that, after all, it is possible to remove the whole of the horizontal portion of the jaw (and it might be the entire bone) with a successful result.

"The lacerated nature of the wound had prevented hemorrhage in this case; but there must have been as much shock from this severe accident as from the ordinary operation of removing the entire jaw.

"Dr. Watson had heard of a case in which the whole lower jaw had been removed, and where the individual recovered. He remembered an American case in which there was necrosis of the whole base of the lower jaw, and where the operator removed not only the dead but the substitute bone, including the condyles, and where the patient had recovered. He had himself assisted Mr. Syme in an operation where he successfully removed one ramus and the whole of the symphysis, and where, of course, the attachments of the tongue were cut through. No doubt there was at first a tendency to retraction of the tongue, but if it were held forward for a few moments this tendency disappeared, and there was no subsequent danger of choking."—*Edinburgh Med. Journ.*, Dec. 1861.

36. *Reunion of Severed Fingers*.—EDWARD DANIELL, Esq., records (*British Med. Journ.*, Jan. 11, 1862) the following interesting cases illustrative of the ready union of severed fingers when cut off by clean and sharp instruments:—

"A young man named Edmund Bedford, an apprentice to a wheelwright in this town, severed the end of his thumb by a sharp blow of a hatchet. He ran off immediately to me, accompanied by his fellow-apprentice. The cut was not lacerated in the least; it was a clean cut, and admirably adapted for grafting; but the end of the thumb was in the sawpit. I despatched the youth who accompanied the patient to look for it; he returned very soon with the absent portion carefully wrapped in paper, but invested in sawdust. When this was removed, I fitted the part accurately on the wound, and placed a strip of lint two-thirds down the thumb, carrying it over its loose end to the same distance on the opposite side; round this I wound a longer strip of lint, and finally secured it with strapping. To make it still safer, I covered it over with what is called a thumb-stall. At the end of ten days perfect union had taken place; and at this time the thumb is as good as ever.

"A labourer of the name of Pell, from a neighbouring village about three miles from my residence, cut off three fingers by a chaff-machine. He came hastily into the surgery, threw down his fingers on the table, and exclaimed: 'I need not tell you what's the matter with me, sir.' 'No; but I am glad you

brought your fingers with you, for I shall put them on again.' The man objected much to this, and for some time obstinately refused to submit to such 'foolish nonsense;' however, I succeeded in carrying my point, and the severed fingers were replaced on the wounds. The result was satisfactory; perfect union was established.

"About three weeks since, William Clare, of this town, publican, came to my surgery, having severed the ring finger of the left hand by a chaff-machine, immediately below the nail, cutting through the phalanx. He was followed by his son, who had discovered the finger amongst the chaff. I carefully replaced it, and treated it in the same way as the preceding cases. At the end of ten days, union was perfect. The nail sloughed off, and a new one is rapidly forming.

"I record these few cases out of many, to show what may be done by the plastic principle of adhesive inflammation even in the restoration of parts which have been separated from the living body, and usually regarded as incapable of reanimation; and also to press upon my brethren never to lose sight of the chance of trying the effects of human grafting, especially in joints like the fingers, where the measure of vital energy required for reanimation is so small.

"For my own part, I have not had a single instance of failure in a somewhat extended practice, when I have had to deal with these kind of amputations occurring in the first or second phalanx."

37. *Spontaneous Dislocation of the Femur.*—In bringing this subject before the Vienna Medical Society, Dr. DITTL adverted to the differences which existed between traumatic and spontaneous luxation. In the former, the result of great violence to a healthy subject, the *ligamentum teres* and the capsule are always torn, the head of the bone lying external to the ruptured capsule. According to the author's numerous experiments and his examination of specimens, this laceration of the capsule does not take place as a mere slit, it always becoming, at the same time partially separated from its insertion in the edge of the acetabulum, forming a triangular flap, which by interposition may render reduction difficult. Spontaneous luxation, on the other hand, is always the consequence of a disease, and occurs through mere muscular action, unaccompanied by external violence. Any disease, as soft enchondroma, gelatinous cancer, etc., but most commonly inflammation, which leads to a loosening of the texture of the surrounding tissues, may give rise to the displacement. These being soaked in exsudative matters, the cartilage softens, so that a plate of it and the *ligamentum teres* may be defibrinated by means of a forcep. The capsule becoming swollen, passively yielding, and distended like a bladder. The patient usually remains upon his back, with the hip-joint bent, the head of the bone pressing upon the posterior edge of the acetabulum, in which direction it is also forced by the muscles acting through reflected contraction. For this reason the edge of the acetabulum and the corresponding portion of the head of the bone undergo diminution, and the occurrence of luxation is favoured; and, if arrest of the disease could now be obtained, the head of the bone would no longer enter the cavity completely. Contrary to what takes place in traumatic luxation, the *ligamentum teres* in this form of dislocation is not necessarily torn, and the capsule is uninjured and still retains the head within its cavity.

For the prognosis, the determination of the stage of the disease at which the luxation takes place is of great importance. At an early period, reposition is more difficult, but the result is more durable; while later, the head is easily replaced and easily resumes its abnormal position. In cases no attempt at replacement should be made. Reposition is contraindicated when the muscles have become firmly contracted, owing to the position they have retained, when abundant osteophytes have become developed and when inflammatory action is still present. Dr. Dittl thinks that direct extension should not be employed for the purpose of obtaining reposition; and, in the two cases which came under his own care, applying the hand to the knee, he bent the limb strongly forward, loosening the head of the bone from its adhesions by movements of abduction and adduction, and rotating it outwards during abduction. The after-treatment is of the highest consequence, as, if neglected, relapse may easily occur. It consists in keeping the thigh, by means of bandages, extended and rotated out-

wards for one or two months. Some amount of shortening will remain after recovery, as also some eversion of the foot. In one of the author's cases, reduction took place five months after the occurrence of the luxation, and six months later the patient was able to get about unassisted. In the other case six months had elapsed before reduction was effected. Passive movements of the limb executed four weeks afterwards, re-excited inflammatory action, which, however, was soon abated. The reduction should be accomplished under the influence of chloroform, in consequence of the active contraction of the muscles attempts at effecting it excite. Dr. Salzer, founding his remarks on a case which occurred in Heyfelder's practice, disagreed with the author in thinking it necessary to await the subsidence of inflammation before proceeding to reduction; on the contrary, this should be effected as soon after the occurrence of the luxation as possible, as delay renders it difficult or impossible, while after its completion the inflammation subsides. The subject of the case alluded to was a medical practitioner, who was able to leave his bed four weeks after the reduction, and is now in the active pursuit of his profession.—*Med. Times and Gaz.*, Jan. 11, 1862, from *Wochenblatt der Gesell. der Aerzte in Wien*, No. 26.

38. *On the Treatment of Aneurism of the Extremities by Flexion of the Limb.*—Mr. ERNEST HART, in a paper read before the Royal Medical and Chirurgical Society, in April, 1859 (see number of this Journal for July, 1859, p. 242), brought to the notice of the society a case of popliteal aneurism, which he had successfully treated by flexion of the leg in 1858. Mr. A. Shaw kindly communicated at the same time a second case, which he had subsequently successfully treated by that method. Mr. Hart wished to ask the attention of the society to some further cases treated with success on this plan since the above were made public through the medium of the *Transactions*. They were all cases of aneurism of the extremities—for the most part popliteal. Indeed, by the nature of this method of treatment, its application was confined to the extremities; for here the general law of position of the great arteries to some extent favoured it. The author remarked that the effect of forcible flexion of the healthy arm or leg might be observed in the considerable retardation of the blood flowing through the main artery, and the almost entire extinction of its pulse. The application of this principle to the extreme flexion of the arterial trunks was obvious. Their structure favoured the effect described. Probably, also, the projecting bellies of the contracted muscles might cause some pressure on an artery which lay in contact with them; and in the case of an aneurismal swelling some direct pressure might be made upon the tumour; but of the occurrence of this circumstance, or of its desirability, the author was doubtful. It was now pretty clearly established and generally accepted, that the object in treating aneurism was not to cut off the supply of blood, or altogether at once to arrest circulation in it, but to cause such a retardation of the current as would lead to the gradual deposit of fibrinous laminae in the interior, and so effect its gradual consolidation. The former method was uncertain and dangerous; the latter safe and permanent in its results. In the case in which the author first applied the method of flexion to the treatment of popliteal aneurism, and in that in which Mr. Shaw subsequently tested it, they were completely successful in obtaining the latter result. Mr. Hart had met with similar success in the following case:—

CASE 3. In September, 1860, a healthy and robust looking man, aged thirty-five, was sent to him by Mr. Bridge, for treatment of a popliteal aneurism of the left leg. It was of the size and shape of a large lemon, projecting on the inner side of the ham. It had a loud bruit and very perceptible thrill, but was not entirely reducible. The skin was somewhat discoloured over the tumour, as though from a recent bruise. The patient had noticed the existence of this pulsating tumour for nearly two years. It had increased somewhat in size during the first nine months that he had observed it, and he had several times thought of seeking advice, but as he had felt little pain from the disease, he had neglected its cure. About three weeks before the author saw him, he had received a blow in the region of the tumour, and since then he had suffered pain in it, and the swelling had increased. The arteries of the leg pulsated distinctly, and there was no very marked dilatation of the veins below the knee. There

was no history of gout or syphilis. A week was allowed to elapse before commencing any treatment. The discolouration of the skin was then no longer visible, and the aneurism was pulsating distinctly as before. Mr. Hart desired in this case to separate the effect of treatment by flexion as clearly as he could from any collateral or adjuvant agencies. He did not, therefore, employ any form of medical treatment whatever, nor did he invalid the patient by enjoining the horizontal position and confinement to bed. He rolled the leg in a flannel bandage from the foot upwards, stopping below the tumour so as not to compress this in any way. He then bent the leg on the thigh, and retained it in the flexed position by means of three pieces of bandage attached to the ankle and along the leg. The patient was allowed to rise and go about the room by the help of a crutch. The forced flexion of the leg entirely arrested the pulsation of the tumour. Complete flexion caused, however, an inconvenient degree of pain, and after eight hours he relaxed the bandages so as to leave the leg in a semi-flexed position. At night he ordered one grain of solid opium. The patient slept well. Next morning the tumour still pulsated distinctly. He again completely flexed the limb, and during the next two days it was retained in that position, being unmoved during the night. The patient moved about freely the whole time by the help of a crutch and stick, and occasionally of a wooden pin leg roughly adjusted below the bent knee. He occupied himself in reading, writing, and smoking. He complained of pains in the knee-cap, but after the first night he slept moderately well without opium. On the fourth day Mr. Hart somewhat relaxed the bandages and examined the tumour. He had the satisfaction to find that it was as nearly as possible solidified; a faint thrill, however, could be detected by placing the hand on the tumour. He again replaced the leg in the position of forcible flexion, and retained it so until the end of the sixth day. He could not then find on examination any trace of pulsation or thrill. The articular arteries beat perceptibly, and he concluded that the collateral circulation was satisfactorily established, and the aneurism consolidated by the deposition of laminated clots. As a desirable measure of precaution, he retained the leg in the semi-flexed position for another week—a proceeding to which the patient, who fully understood the nature and object of the treatment, offered no objection. The subsequent progress of the case was in every way satisfactory; it offered no peculiarity worthy of note. It was three weeks from the conclusion of the treatment before the patient ceased to limp from the stiffness of the knee, caused by its confinement. It seemed to the author that this case sufficiently established the simplicity and efficiency of the treatment of popliteal aneurism by flexion in certain cases. Here he was enabled to effect a cure practically in six days without the use of any apparatus, without the intervention of any watchers or assistants, without risk or danger. This patient had been cured of popliteal aneurism—a disease formerly so formidable—without being confined for a day to bed. In order to afford the grounds of a judgment on the relative merits of the flexion treatment, it might be proper to add a brief *résumé* of the cases which had been successfully treated by other surgeons in this country who had employed the method since the author had the honour to introduce it to the notice of the society. Some of these cases had been treated by flexion solely; in others that method had been conjoined to the treatment by compression.

CASE 4. *Popliteal Aneurism—Recurrence after ligature of superficial Aneurism—Treatment by compression unsuccessful—Cure by flexion of the leg.*—By JAMES SPENCE, F.R.C.S.E. T. H., a coal-carter, was admitted into the Royal Infirmary, Edinburgh, under the care of Mr. Spence, in August, 1858, with a pulsating aneurismal tumour, of the size of an orange. The superficial femoral had already previously been tied in May, 1857, with the effect of producing solidification of the tumour. But the pulsation recurred a few days before this second admission, and the tumour was then as large and pulsating as violently as before the artery was tied. Compression was carefully employed over a period of upwards of five months, but the tumour was at the end of that time increasing instead of diminishing. The patient left the house for some weeks, but returned, desiring to submit to any operation that might be thought necessary. The following is the sequel of this very interesting case in the words of the surgeon: “On examining the aneurism at this time, its condition was as follows:

It was the size of a pretty large orange, and pulsating strongly; the femoral artery could be felt to pulsate for about four inches below Poupart's ligament, ceasing to beat for about an inch or less above the point where the superficial femoral had been tied. Pressure on the common femoral completely and readily arrested pulsation in the sac. Compression of the superficial femoral above the point tied also did so, but required very firm pressure to be made directly backwards. Compression along the course of the superficial femoral below the point tied produced no effect until it was made over the lowest part of Hunter's canal, when the pulsation of the aneurism became thoroughly commanded by it. Under these circumstances, after weighing the comparative chances of success between ligation of the external iliac, or the lower part of the superficial femoral, the latter plan was decided on, and the patient willingly gave his consent. But as the case did not seem a very hopeful one, it was thought as well to try the plan of flexion of the leg upon the thigh recently proposed. On bending the limb fully, all pulsation was at once and completely arrested, and the limb was bandaged in that position. But the patient could not bear such flexion to be kept up. Accordingly, a slipper, with a slip of bandage sewed to the heel, was fastened to the foot, and the slip of bandage was then fastened to a loop connected with a broad bandage round his pelvis, and this gradually tightened, so as to increase daily the flexion of the leg on the thigh. This treatment was commenced on May 20, 1859. On the 23d, the pulsations were weaker, but returned when flexion of the limb was discontinued. On the 27th, the pulsation diminished; tumour smaller and firmer. There was still a tendency to increase of pulsation when the limb was allowed to remain straight for any length of time. On June 6, the pulsation was scarcely to be felt in the aneurism, even when flexion was discontinued. The tumour felt solid and smaller, and enlarged anastomosing vessels could be felt over it and around the knee. The patient was now allowed to walk about with crutches, the affected limb being suspended in a flexed position. When in bed or sitting in the ward, he was desired to extend the leg occasionally, and not to keep it constantly bent. On June 20, there was not the slightest pulsation to be felt in the aneurism, which was firm and considerably diminished in bulk. Several very large anastomosing vessels could be felt over the tumour, the limb was of good heat, and there was no stiffness of the knee-joint. I kept the patient for about three weeks longer in the Hospital under observation, and he was dismissed cured. Since then he has returned to his usual occupation of coal carter, which requires him to walk considerable distances, but when I last saw him there was no tendency to return of the disease."

CASE 5. *Aneurism of the Popliteal Artery successfully treated by Flexion combined with Pressure.* By OLIVER PEMBERTON, Surgeon to the General Hospital, Birmingham.

CASE 6. *Traumatic Aneurism of the Radial Artery successfully treated by Flexion and Compression.* By R. M. CRAVEN, Hull.

CASE 7. *Aneurism of the left Popliteal Artery, cured in sixty-eight hours by the combination of Flexion and Compression.* By LEITH ADAMS, M.B., Surgeon to the 22d Regiment.

CASE 8. *Popliteal Aneurism—Compression—Great increase of Tumour—Flexion of Limb—Cure.* By WILLIAM COLLES, F.R.C.S., Surgeon to Stevens' Hospital, Dublin.

CASE 9. *Popliteal Aneurism cured by Forcible Flexion.* By AUGUSTIN PRI-CHARD, Surgeon, Bristol.

The author was not unaware that the flexion treatment had not always been successful. In cases under the care of Mr. Paget, Mr. C. H. Moore, and Mr. Birkett respectively it had been employed, and disused as ineffective. The first two were, however, cases in which the contents of the aneurismal sac had escaped by rupture or ulceration. These are severe forms of the disease in which extreme treatment is always likely to be required. In all three compression also failed, and ligation was resorted to. In the hands of other surgeons the method had been found painful, and apparently abandoned on that account. On this head he would only remark that other methods of treating aneurism are commonly both more painful and tedious, as well as attended with greater risk. The first results of any method of treatment are likely to be, as they always have

been, less perfect and less uniformly successful than those which follow upon a larger experience and a more assured application. It is probable that attention to certain points of detail may tend to prevent pain and inconvenience. By carefully bandaging the limb, support is given to the superficial veins and rest to the contracted muscles. Friction of the limb upwards may serve the same purpose. Inunction of the knee-cap with oil and chloroform diminishes the sensation of stiffness, and relieves pain. By allowing the patient to rise from his bed and dress himself, much of the tedium is obviated, and coagulation of the fibrin aided. Sleep follows much earlier at night. Any favourite habit, such as smoking, may be usefully permitted, with the same object. It is desirable to bespeak the assistance of the patient himself, by explaining the nature of the malady and treatment. Flexion should be employed with care, and graduated. The author's reason for referring to these minutiae might be found in the past history of this method, and of the cognate treatment by compression, in which attention to minute details had been shown to produce a remarkable increase in the success obtained. For success a watchful and intelligent interest was necessary. In reviewing the cases already successfully treated by flexion, it seemed to the author that there were many elements for a favourable judgment. Compared with compression, it had the advantage of not requiring the constant and watchful attention essential to the success of that method. No instruments were employed, and no assistants were needed. There was no risk of ulceration of the skin, of erysipelas, or of that other rare effect described by Mr. Oliver Pemberton—the production of aneurismal varix at the site of pressure. If not ultimately successful, it would still have had the effect of beneficially developing the collateral circulation. Of course, where practicable, it would always be preferred to the use of the knife. The interesting case of recurring popliteal aneurism under the care of Mr. Spence, affords an instance in which flexion effected a cure where the superficial femoral artery had already been tied, and compression during five months had failed; the undesirable alternatives being the ligature of the femoral close to the sac or the external iliac, under unfavourable circumstances. Mr. Spence states: "From what I saw of the plan of flexion of the limb in this case, I would have great hopes of its success as a curative measure, far simpler and more efficacious than any form of compression I have seen employed, devoid of all its risks, and not interfering with, but rather beneficial as a preparation for, ligature of the artery, should it fail in itself accomplishing the cure."

The cases related show that flexion may be satisfactorily employed as aiding compression where this is desired. Finally, Mr. Hart said that he did not now seek to define the position of the flexion treatment in relation to aneurism, or to establish arbitrarily its superiority to other methods. He desired to leave this matter to the judgment and further experience of the surgical profession. His object in this communication had been to submit to this society the further facts which had come to his knowledge since he had the honour first to bring the treatment to their notice, and which furnish the grounds for a more complete judgment of its merits and deficiencies.—*Med. Times and Gaz.*, Feb. 8, 1862.

39. *Return of Pulsations in Aneurisms after the Ligature.*—During a discussion on aneurism at the Society of Surgery, M. BROCA observed that the return of pulsation may depend upon three different causes: the persistence of the pulsations, return of the pulsations, and relapse of the aneurism. In the first of these cases it is due to the presence of a somewhat large collateral vessel very near the aneurismal sac. The pulsation soon appears, but the cure of the disease is not prevented. In the second case, when the pulsations return, the sac is suddenly filled with coagula which have not had time to become organized, and these "passive" coagula are gradually dissolved, the arterial pulsations then reappearing. They appear soon after the operation, and may persist for one, two, three months or more. At last, these first coagula are replaced by "active" coagula, and a cure is produced in almost all cases. When relapse is to happen, the pulsations do not reappear as soon as in the preceding case, not occurring until one, two, or six months, or even from one to three years, after the ligature. At one of these remote periods the blood has made a passage into the sac, and hav-

ing hollowed out a more or less spacious cavity, the tumour takes on again the characters of an aneurism. Under all the above circumstances, more or less circumscribed pulsations are perceived in an aneurism for which an operation has been performed, but the prognosis is very different. In the first two cases no surgical treatment is called for, while that of relapse is a very serious one.

M. Broca gave an account of the various cases he had collected exemplifying these occurrences. These do not comprise mere persistence of the pulsations after the application of the ligature, as owing to the circulation being rendered slower the deposition of fibrin goes on gradually and regularly until a cure is accomplished. They relate only to the cases in which the aneurismal tumour, after having been filled with coagula, at the end of a certain time again becomes permeable; and these, as stated above, may consist of instances of *return of pulsation and relapse properly so called*. Cases of return of the pulsation are distinguished from those of relapse by the fact that the tumour makes no progress; its pulsations, always more feeble than before the ligature, acquiring their maximum of intensity in a few hours, and then diminishing in force. Of 26 cases collected from various sources by M. Broca, 13 were aneurisms treated by ligature of the femoral, 4 of the external iliac, 6 of the primary carotid, 1 of the subclavian, and 2 of the radial. In 5 of the cases the pulsations reappeared before the end of the first day, eight times from the third to the seventh day, four times from the eighth to the fifteenth day, once on the nineteenth day, and once at the end of the seventh week, in this case only continuing during one day. None of these patients became the subjects of gangrene. One died from phlebitis, the ligature having perforated the femoral vein, and another in consequence of secondary hemorrhage from the wound made for the ligature. All the other 24 cases survived, and all were radically cured with the exception of two, which went on to true relapse. Of *relapse*, properly so called, he has collected 22 examples, this manifesting itself in 7 towards the end of the first month, and in 13 after the end of the sixth month, the epoch not being exactly indicated in the two others. It is remarkable that in none of the cases completely known has the relapse occurred between the first and the sixth month. All the relapses occurring after the end of the sixth month, related to aneurisms of the lower extremity. Six relapses occurred between six months and a year, 2 at the end of a year, 1 at the end of two years, 1 at the end of four years, 1 at the end of 7 years, and 1 at the end of fifteen years. This class of cases is far more serious than the former; for although in three instances the aneurisms were cured spontaneously or by means of slight treatment, and in two others they remained stationary for a long time, in all the rest their progress was much more alarming.—*Ibid.*, from *Gazette des Hôpitaux*, 1861.

40. *Radical Cure of Varicose Veins of the Leg*.—MR. JOLLIFFE TUFNELL related to the surgical society of Ireland (Dec. 14, 1861) the details of a case of varix of the saphena vein upon which he had lately operated in the manner recommended by Mr. Wood of King's College, London, and with the pins introduced by him for this purpose. The termination of this case was successful, but the amount of inflammatory action produced was such as to render the proceeding hazardous, and its progress one of anxiety for many days.

Professor HARGRAVE stated that he had for many years looked upon operations on the saphena vein as most questionable. It was ascertained that the operative interference did not lead to a permanent cure. It might, and did heal for a time, but the disease afterwards returns. Many years ago, so far back as the time of the old Meath Hospital, he directed his attention to the operative surgery of the veins, and recollected that Mr. Hewson, an excellent practical surgeon, was most unwilling to introduce it into this country. He believed Sir B. Brodie recommended a subcutaneous division of the veins by means of a very simple convex knife. Two or three of the operations performed by Mr. Hewson were successful, but in three or four other cases diffuse inflammation of the vein set in, and the patient sunk under it. The result produced an impression on his mind that had never left it, and with regard to varicose veins, he would much rather "bear the ills he had than fly to others he knew not of." As to the case which had been so well brought forward by Mr. Tufnell, the man was

for some days in a very perilous position. He never saw a man before in a more intense rigor. He believed he was the first to recommend for varices a garter made of India-rubber, and had seen it most successful in the case of females suffering from varicose veins. The veins became perfectly healthy.

Dr. Beatty would not have risen were it not that he was desirous of bearing his testimony to the efficacy of the garter recommended by Professor Hargrave many years ago. It consisted of a strong band of vulcanized India-rubber an inch broad. It was pulled on over the feet, and made so tight as to cause a firm pressure on the veins. He had many opportunities of seeing it used by females suffering from varicose veins, and in every case with the most perfect success. He had seen it worn both above and below the knee. With reference to the operation of Sir B. Brodie, he had seen it performed in two cases by the late Mr. Carmichael in the Richmond Hospital, and both patients died.—*Dublin Medical Press*, Jan. 1, 1862.

41. *Vascular Tumours in the Female*.—Mr. HOLMES COOTE states (*Lancet*, Dec. 28th, 1861) that he has met with cases of vascular naevi in the female, which enlarge at every menstrual period, and undergo during the period of pregnancy a permanent increase in size, attended with heat and throbbing—symptoms which slowly subside after delivery. In 1859 Mr. C. saw a young lady, aged twenty-two, in whom one of these vascular growths occupied the palmar aspect of the ring finger of the left hand. It enlarged at the usual monthly period, the swelling being the greater if menstruation was delayed. She wished to undergo some operation for its removal—a proceeding of which Mr. C. disapproved, feeling that there was danger of inflammation attending any operation, however carefully conducted, and that there was a reasonable probability that the naevus would ultimately disappear. This lady has since married. During pregnancy the enlargement of the naevus is remarkable, but it completely subsides after delivery, and with her second child it constituted one of the early symptoms of impregnation. Mr. C. has since seen a second similar case in private practice, and a third case amongst his out-patients at St. Bartholomew's Hospital.

42. *Spina Bifida successfully treated by Injection of Iodine*.—In February, 1859, Dr. LÉZÉRIE was called to see Marie B., an infant aged nine and a half months, who had in the lumbar region a tumour as large as a moderate sized orange; it presented all the signs of spina bifida. The parents said that it had emptied itself spontaneously twice since birth by external aperture, and that it had rapidly refilled. There was complete paralysis of the lower limbs, partial paralysis of the upper limbs; the head could be moved easily; and there was no hydrocephalus. The parents were anxious for an operation, which was accordingly performed by M. Lézerie, after clearly setting forth its dangers and uncertainty of success. On March 12th, pressure being made at the upper part of the tumour to prevent, if possible, communication with the spinal canal, the fluid contents were partially evacuated, and a nearly corresponding quantity of a mixture of equal parts of tincture of iodine and water was thrown in. This was held in for two minutes, when some was allowed to escape. Another injection was then made in like manner. On the fifteenth day after the operation, the motions of the upper limbs were more free, and the child could support herself on the legs, but could not move them. In a month, the improvement in the arms continued, and the lower limbs could be moved a little. In four months, the paralysis had almost completely disappeared; and, in six months after the operation, the child could walk alone. During the progress of the case, compresses dipped in an iodine solution were kept constantly applied over the tumour. Twenty-seven months after the operation, the tumour was reduced to the size of a walnut; the child was well developed and very lively, and could run easily. The only remaining trace of her former condition was incontinence of urine.—*Moniteur des Sciences Méd.*, Oct. 8, 1861.

43. *Cystotomy without a Stone*.—Mr. T. PAGET, of Leicester, candidly reports the following instructive case in which he opened the bladder for stone, deceived by symptoms simulating those of calculus.

The case was received in the Leicester Infirmary by Mr. Marriott, the house-surgeon, and entered as, "September 24, James Branson, aged three years eight months; symptoms of stone. Examined twice by Mr. Marriott, and stone found the second time." Not, however, as he told me when reporting the case, with sufficient distinctness to settle his mind for an operation.

The history given by the father and the woman who had had care of the child since its mother's death, two years ago, was that it had violent pain in micturition, losing much rest by frequent calls, attended by sudden stoppages of the stream and the making of a larger quantity immediately after, violent squealing, pulling of the parts, and forcing of feces. Around the anus were several livid lumps of hemorrhoids. There had been no hamaturia. It was reported that no urine ever passed except while in a sitting posture. The child was healthy looking.

Sept. 26. The child having been prepared for the operation by having had the bowels emptied yesterday and an opiate enema this morning, the sound was introduced, and an indication of stone immediately given; but the click, though audible, was not sufficiently clear to encourage an incision.

After repeated attempts, the sound was producible at will; but did not impress all equally as being the click of an uncovered stone. Mr. Benfield and Mr. Marriott thought it certainly not sufficiently clear; Mr. Brown of Wymeswold was more satisfied; none of us, I believe, were free from doubt.

In this dilemma, I was influenced by the character and intensity of the symptoms, the hopefulness of permanent good if there were a stone, the rare occurrence of death with us after lithotomy, especially in children, and with Allarton's operation; and, after much hesitation, I decided upon opening the bladder at the risk, as I thought, of finding a stone impacted in the end of the ureter, and not being able to remove it.

I chose Allarton's operation, introducing a director along the groove of the staff, and using my little finger between the two as a dilator. In this way, the dilatation was readily effected; the finger entered the bladder, and the staff was removed. A nasal forceps was then passed over the director, but no stone could be found. Frequent attempts with various forceps were made; and once, when passing a large pair in the hope of stretching open the ureter and dislodging a calculus from its end, I found that the lax cellular membrane between the rectum and bladder had given way, and the forceps were admitted into the recto-vesical pouch. This, however, was soon perceived, and the forceps were passed into the bladder.

The movements of the forceps imparted a feeling of slight grating, or rather vibration; but no click could be heard, and the grating was only that often produced by steel instruments rubbing over ent muscular fibres.

The examination and operation occupied a long time; but the least possible effect of chloroform was maintained, sufficient to keep down manifestation of pain. Very little blood was lost.

6 P. M. He had slept nearly continuously, but had spoken rationally. Urine passed by the wound freely, and only slightly tinged.

10 P. M. The urine was untinged. He had vomited once or twice.

27th. 9 A. M. He was perfectly conscious, and winced at pressure on the hypogastrium. Pulse rapid and small.

11. A. M. There was still considerable stupor, and he had again vomited. He winced still. Pulse rapid; skin hot; urine abundant and untinged. Poveatur abdomen.

7 P. M. He was suddenly convulsed, both arms especially; the thumbs were turned into the palms; the fingers tightly clenched; the pupils dilated to the utmost, and unmoved by the strongest light. Three grains of calomel were ordered to be taken immediately, and four leeches to be applied to the hypogastric region.

28th. 9 A. M. He became partially conscious between 3 and 6 A. M.; but soon relapsed, and was now profoundly comatose; pupils dilated. He indicated pain when pressed on the hypogastrium; otherwise he was unconscious.

Post-mortem examination, next day at 10 A. M. The kidneys, ureters, bladder, and urethra, as far as occupied by the incision, after full examination *in situ*,

were removed. There was no stone or calcareous matter in any part. Both ureters were tortuous in their course, and greatly dilated, so that the little finger passed down them with ease; the dilatation was most at their lower ends, the left forming a complete pouch nearly as large as a pigeon's egg. Beneath and around this a puriform fluid appeared, and extended downwards into the rectovesical pouch, into which the finger readily passed from the wound. The mucous membrane of the bladder was injected posteriorly, and ecchymosis occupied small patches here and there. The sphincter was not lacerated; the urethra, where incised, showed slight ecchymosis; the edges of the incision were turgid and lymphic; the *trigone* of the bladder was of an ashy gray. There was a blush of peritonitis in the pelvic cavity. After removing the bladder, etc., the sound was passed with the integuments of the abdomen closed, and the muffled click was heard again, though less distinctly. On opening the pelvis again, this was found to arise from the point of the sound impinging upon the iliac portion of the brim of the pelvis, the edge of which was unusually thin and sharp. Perhaps, here is an explanation of the click and feeling imparted to the instrument before operation. The instrument used in this case was a common steel sound, having at the hand end a socket, into which is tightly fixed a peg and a disk of wood; the latter six inches in diameter and one-tenth of an inch in thickness. The disk acts as a magnifier to all sounds heard, and is an useful addition to the instrument where it is desirable that a number of surgeons shall be satisfied of the presence of a stone.

On opening the head, the brain was found in a remarkably soft state. Both cerebral hemispheres and the cerebellum were so extensively if not uniformly marked by this softness, as to lead to the conclusion that such was the native condition of the child's encephalon; and we learn from the father, since its death, that he has lost his wife and five children: one of the latter "with water on the brain," another "by sudden convulsions which took him off in five minutes while suffering from swelled purse." Though the consideration of this case, therefore, would *primâ facie* drive one to the determination not to operate in any case unless the clearest and sharpest click were given from the examining instrument, it is nearly certain that the opening of the bladder is not to be accredited as the main cause of death in this case; for the peritonitis was neither intense nor widely spread, nor, during life, more marked than I have seen it in cases that have been freed from it and going on well in a few days; and that in whatever degree the peritonitis may be thought to have been tributary, the main cause lay in the excitability of a sensorium imperfectly constituted, and unable to bear the shock of the lengthened examination, operation, and chloroform action. I regret, however, now that, in ignorance of the peculiarity of the family history, I did not avail myself of a suggestion made by Mr. Benfield to postpone the operation for a few days.

But if the explanation I have suggested of the sound which was heard by all, though not conclusively for operation, were the right one, the symptoms still remain as a mystery. We occasionally find cases of great pain and frequent micturition of small quantities, and which are attributable to irritable bladder or acrid urine; but these symptoms are usually accompanied by mucous or muco-purulent deposit, which we had not; and never, as far as I know, by sudden stoppage of the stream followed by the passing of a larger quantity immediately after. How far we may accept the explanation ingeniously offered by Mr. Charles W. Wood of Woodhouse Eaves in this country, at the *post-mortem* examination, I leave others to decide. He takes the very dilated state and pouchy form of the ureters as the cause of their more than usually oblique and valvular entrance into the bladder, and of a difficult, intermitting, and painful evacuation of their contents into it, the pain being transferred along the canal to the usual site at the glans penis. Certainly, the immense size and irregular form of these conduits were very striking.—*British Med. Journal*, Dec. 14, 1861.

44. *Strictured Urethra showing the Results of Forcible Dilatation after Death.*—MR. BERNARD HOLT exhibited to the pathological society a specimen of this. The patient, who was known to be suffering from severe stricture of the urethra, died in the Westminster Hospital of fever, and the opportunity

was taken to introduce Mr. Holt's "stricture dilator," post-mortem, and to slit the stricture precisely as would be done in the living body, with the view of examining the effects produced by the operation. The urethra having been carefully removed and opened, showed a longitudinal rent in the mucous membrane and submucous tissue of the floor of the urethra corresponding to the situation of the two strictures which had existed, but the vascular tissue of the corpus spongiosum was uninjured. Mr. Holt remarked that the appearance corresponded exactly to those he had always imagined, but he had not had an opportunity of ascertaining, owing to the uniformly favourable result of the operation.

Mr. Henry Thompson said he had had the opportunity of closely examining the specimen, and of witnessing the performance of the operation in several cases certainly with the best results; but he still doubted whether the stricture was really torn, and thought that it was rather the healthy tissue which gave way.

Mr. Holt replied that as the calibre of the urethra was restored in all cases, he presumed that the stricture was split, and as Mr. Thompson himself said that the stricture was commonly at the lower part of the urethra, he considered it highly satisfactory that the rents should be found in that situation in the specimen.

In answer to Mr. Hutchinson, Mr. Holt said that his patients had never suffered from abscess in the perineum.—*Med. Times and Gaz.*, Dec. 14th, 1861.

45. *Treatment of Large Ovarian Cysts and Tumours.*—Dr. T. SPENCER WELLS, in his address before the meeting of the British Medical Association in July last, gives the following conclusions as the result of his extensive experience:—

"I. So long as an ovarian tumour does not materially interfere with the appearance, prospects, or comfort of a patient—so long as no injurious pressure is exercised by it on the organs of the pelvis, abdomen, or chest—so long as heart and lungs, digestive organs, kidneys, bladder, and rectum perform their functions without much disturbance—so long as there is no great emaciation, no very wearying pain, no distressing difficulty in locomotion—or so long as any such injurious influence can be counteracted by ordinary medical care—the patient should be left to that care, undisturbed by any surgical treatment. But,

"II. As all specific medical treatment—by iodine, or bromine, or mercury, or lime, or potass, or by diuretics or other medicines used with a hope of checking the growth of ovarian cysts and tumours, or of leading to the absorption of the fluid they contain—has been proved by ample experience to be absolutely worthless, no medical treatment should be adopted which can possibly injure the general health of a patient, or place her in a less favourable position than she otherwise would be for such surgical treatment as may ultimately be called for.

"III. When an ovarian tumour deforms a patient, or materially impedes locomotion, or interferes with the free action of heart or lungs, or obstructs the circulation through the large veins in the abdomen, or causes more or less constant and distressing pain, loss of rest, or emaciation, or leads to derangement of the digestive organs, or makes injurious pressure on the contents of the pelvis, surgical aid is required.

"IV. When surgical aid is required, we must be guided by the nature and connections of the tumour in our selection of one or other of the following methods:—

"Simple tapping through the abdominal wall.

"Simple tapping through the vagina.

"Simple tapping through the rectum.

"Tapping followed by pressure.

"Tapping and the formation of a permanent subcutaneous opening in the cyst-wall.

"Tapping and the formation of a permanent opening through the skin, vagina, or rectum.

"Incision.

"Tapping followed by injection of iodine.

"Ovariectomy."—*British Med. Journ.*, Dec. 21, 1861.

46. *Radical Cure of Ovarian Disease.*—MR. T. SPENCER WELLS gives the following as the result of his own personal experience in the radical cure of ovarian disease:—

"a. Two patients have been radically cured by simple tapping.

b. Of five patients injected with iodine, three¹ have remained without refilling for more than two years, and still remain well. In the fourth, secondary cysts have since grown to a large size, and ovariectomy (which might have been performed before the injection) now appears too hazardous to recommend. In the fifth case, the cyst has refilled after two injections; but the patient will try it a third time, as the coexistence of a fibroid tumour of the uterus, and the general state of health, forbid ovariectomy.

c. The cases in which I have punctured by the vagina and the rectum are still under observation; and I have not yet arrived at any further rule of practice than that before suggested.

d. In two patients, a free incision was made into a large mass of small cysts, in order to afford relief from pressure. The relief was given, and life somewhat prolonged; but both patients died after a few weeks.

e. In two cases, after making the first incision for ovariectomy, the operation was not proceeded with. In the first case, because the intestines were in front of and around the tumour. This patient suffered very little from the incision; and died four months afterwards from spontaneous rupture of a cyst into the peritoneal cavity. In the second case, adhesions were found to be very firm; and, as it had been arranged before the operation with the patient and her friends that if firm adhesions were found the operation should not be continued, I at once closed the wound. The patient had not had symptoms. It was about a year ago, and she has been tapped several times since.

f. In twenty-six cases, I performed complete ovariectomy (thirty, see former note). Of these twenty-six patients, sixteen recovered perfectly. Fifteen (seventeen, see former note) are still alive, and in good health. One bore a child thirteen months after operation. Had the disease been allowed to run its natural course, or had simple tapping been the only surgical treatment adopted (none of the cases being suitable for iodine injection), I believe hardly one of these fifteen (seventeen) women would have been alive now; and, if any had lived, they would have been in the distressing state of all poor women who suffer from large ovarian growths. Had I selected my cases by refusing to operate where I was not very confident of success, I may say that scarcely a patient would have been lost. Some apparently desperate cases have recovered; and this has been the justification for operating in cases equally desperate. But it has led to several deaths which might have been delayed for some few weeks by thinking more of the reputation of surgery than of the prayers of the patient. It may be imprudent to operate in desperate cases; but the surgeon, if he fail, is not so much blamed as when he operates upon a person in tolerable health; and, if he succeed, the success is more brilliant. I think, however, we must look higher than this. We must remember that it is our duty to relieve suffering and save life, if we can; and, if we see a patient who must die soon—whose few remaining days or weeks must be days of suffering and sorrow—who (fully understanding that the effort to relieve her may hasten on her end) is anxious to be relieved—who may possibly feel that even death would be a relief—and who calls upon a surgeon for help—I believe, and act up to my belief, that it is the bounden duty of the surgeon to do his best, unless he is convinced that no help he can afford can be of any avail. If the result be unhappy, as it often must be in such cases, he will bear the disappointment with fortitude, knowing that he has done what he believed to be the best for his patient. But when, almost contrary to his expectations, almost beyond his hopes, he finds a poor, weary, worn-out creature, fast sinking helplessly into the grave, restored in a few weeks to the full enjoyment of perfect health—she who was a burden to her family again the helpmate of her husband, the active mother of her children—the surgeon reaps that rich reward which you well know is so dear to all whose

¹ One of these cases has been injected a second time since the paper was read, the cyst having begun to refill two years after the first injection.

noble mission it is to relieve suffering—the blessing of her who was ready to perish.’”—*British Med. Journ.*, Dec. 28th, 1861.

47. *Rules for Ovariectomy.*—Mr. T. SPENCER WELLS lays down the following rules for ovariectomy, the observance of which will, he believes, assist in securing a favourable result:—

1. The operation should be performed in an airy room, the temperature of which should not be below 70° Fahr., but need not be raised to a degree, uncomfortable to either patient or surgeon.

2. The patient should be placed in the horizontal position, on a firm, narrow couch, opposite a good light, and be well covered by flannel everywhere except the abdomen and face.

3. She should be spared the fear and shock of the operation, by chloroform.

4. The incision should be made in the median line. It should not pass nearer than two inches to the symphysis pubis, and may commence just below the umbilicus. It may be extended upwards to the left of the umbilicus, and along the median line, as far as may be necessary to expose the tumour and separate adhesions. A large empty cyst may be removed through an incision three inches long; and an incision of five inches is amply sufficient for the removal of very large tumours, provided each cyst be withdrawn as it is emptied, or groups of small cysts be withdrawn unemptied one after another.

5. Any bleeding vessel in the abdominal wall should be secured before the peritoneum is divided.

6. When ascitic fluid surrounds an ovarian tumour, some of it may be allowed to escape; but the tumour should be pressed forward by an assistant to retain the fluid till the last as a protection to the intestines. Any adhesions found, whether there be ascitic fluid or not, between the cyst and abdominal wall, should be carefully separated by the hand while the cyst is full, great care being taken not to rupture any cyst. Adhesions to omentum or intestines are better left until the cyst is empty, and the adherent viscera can be seen.

7. As soon as the tumour is freed from parietal adhesions, it should be tapped by a large siphon trocar. As the fluid escapes and the cyst becomes flaccid, it is either to be fixed by a hook and withdrawn, or drawn over the canula and tied over it, to prevent any ovarian fluid from entering the peritoneal cavity.

8. As the cyst escapes, flannels wrung out of water at 96° are to be carefully wrapped round it to protect the peritoneal cavity. As secondary cysts are drawn to the opening, they are to be emptied, either by the trochar being passed on through the canula which is still tied within the first empty cyst: or by opening this cyst, passing one hand within it, and breaking down secondary cysts, while the other hand withdraws the tumour as it is emptied.

9. When there is a solid or semi-solid mass, so large that it will not pass easily through the opening, this must be carefully enlarged to the necessary extent.

10. If, as the tumour is withdrawn, omentum, mesentery, or intestine, are seen to be adherent to it, the adhesions must be carefully broken down with the fingers, or divided with the scalpel or scissors. When intestine is so firmly adherent that it cannot be safely separated, the adhering portion of cyst should be cut away, leaving it attached to the intestine, but removing the inner secreting lining membrane of the cyst.

11. Any portion of omentum separated, should be carefully held to see that no bleeding vessel is returned. Any portion which appears to be much altered from the natural condition, or torn in the process of separation, should be cut away; and any bleeding vessel should be stopped by torsion, or by ligature. If by ligature, the ends should be brought out through part of the wound. The ligature should not include any portion of omentum—simply the bleeding vessels.

12. When the whole of the tumour has been withdrawn, it will be found to be attached to one side of the uterus by a pedicle which varies very much in length and breadth, and always contains large bloodvessels. This pedicle is first compressed by the chain of an *écraseur*, or by a clamp, close to the junction of the pedicle and cyst. The tumour may then be cut away, great care being taken so to arrange the flannels that no ovarian fluid can enter the peritoneal cavity.

13. The lips of the wound are then held apart, and the opposite ovary is to be

examined. If diseased, it must be withdrawn, its pedicle secured, and the diseased organ cut away. If healthy, it is left undisturbed. A careful examination is then made, to see if there be any bleeding vessel at the spots where adhesions have been separated. Any such vessel may be secured by torsion, or by the pressure of a needle passed across it. Any blood or ovarian fluid in the abdomen or pelvis, must be carefully removed by soft sponges wrung out of water at 96°.

14. The upper part of the wound is now to be closed by passing gilded harelip pins through the whole thickness of the abdominal wall, at intervals of an inch. Each pin should perforate the skin about an inch, and the peritoneum about half an inch, from the incision on either side; so that when the two opposed surfaces were pressed together upon the pin, two layers of peritoneum are in contact with each other. These two layers adhere together very rapidly; prevent pus or other secretions of the wound from entering the peritoneal cavity; prevent adhesions of omentum or intestine to any part of the inner aspect of the wound not covered by peritoneum; and secure such firm union that a ventral hernia cannot occur after recovery.

15. The peduncle is next to be secured permanently. When the clamp does not drag on it too much, it may be left lying across the wound; but it will often be better to secure the pedicle permanently by ligature, and remove the clamp which had been used to secure it temporarily. Close below the clamp, the peduncle is transfixed by a needle which carries strong twine; and each ligature is so tied as to include a portion of peduncle of about a finger's breadth. One general ligature is then tied tightly around the whole as a security against bleeding from any vessel which may have been punctured. The smaller the portion included in each ligature, and the tighter it is tied, the more rapid is the subsequent process of separation. When the ligatures have been securely applied, the clamp is removed, and any superfluous portion of cyst is cut away; but care must be taken to leave enough beyond the ligature to prevent any danger of this slipping off.

16. When the peduncle is so long that the stump (or portion strangulated by the ligature) can be fixed outside the abdominal cavity, it is to be brought out at the lower part of the wound, and fixed there by a harelip pin, which is to be passed through it as well as through both edges of the wound. It is important that the ligatures should be on a level with the skin, and that the stump should be surrounded by dressing which separates the sloughing tissue from the raw surface. When the ligatures are fixed at the level of the peritoneum, raw surfaces surround the sloughing stump, and a sloughing condition of the wound, or putrid infection of the whole system, may possibly result.

17. When the peduncle is so short that the stump cannot be brought to the surface without great traction upon the uterus, the common practice has been to bring the ligature through the wound, and fix the free ends securely outside. In one case, they were carried through the inguinal canal beside the round ligament, and the abdominal wound was closed. In another, they were cut off short and left, the wound also being closed. It remains for further experience to determine which of these plans is to be preferred; or if only the vessels should be tied, instead of the whole thickness of the pedicle; or if acupressure can be applied successfully; or if it would be safer to trust to the *écraseur*.

18. In whatever manner the pedicle may be treated, the wound must be finally closed by a sufficient number of superficial wire-sutures, to bring the opposite edges of skin into accurate contact; and the wound may be brushed over with collodion, as an additional protection against the fetid sanies which very soon begins to surround the decomposing stump.

19. The patient is then dried, and placed in a warm bed; a hot linseed poultice, or a hot water cushion, is placed over the abdomen; and the whole is secured by a flannel belt, which is kept in its place by a pair of thigh straps.

20. The principles of after-treatment are, to secure extreme quiet, comfortable warmth, and perfect cleanliness to the patient; to relieve pain by warm and moist applications to the abdomen, and by opiate enemata; to give stimulants, when they are called for by failing pulse or other signs of exhaustion; to relieve sickness, by ice or iced drinks; and to allow plain, simple, but nourishing food.

The catheter must be used every six or eight hours, until the patient can move without pain. The harelip pins are removed on the third day, unless tympanic distension of the stomach or intestines endanger reopening of the wound. In such circumstances, they may be left for some days longer. The superficial sutures may remain until union seems quite firm. When the pedicle is kept without, the dead stump and ligatures come away between the third and tenth days; but when the stump is left within the abdomen, the ligatures have remained for several weeks. The putrid sanies which surrounds the stump must be carefully cleansed away; and the wound and surrounding skin must be protected from it by means of greased lint or collodion. The dressing should be covered by a muslin bag containing dry charcoal, or a powder of tar and gypsum, to prevent the appetite of the patient from being affected by any bad smell."—*British Med. Journ.*, Dec. 28, 1861.

48. *Artificial Teeth with Plate lodged between the Tongue and Epiglottis.* By JAMES PAGET, Esq.—The following case seems worthy to be added to the records of foreign bodies found in places where they were least likely to be, and producing symptoms very similar to those of organic disease.

In July, a gentleman, sixty years old, after being engaged all day in more than usually fatiguing business, and exposed to cold air, felt faint and ill in the evening, and went to his bedroom, at the hotel in which he was staying. While lying down, faint, or, perhaps, in the beginning of a slight epileptic seizure, he asked the servant to take out for him his artificial teeth—nearly complete separate sets for the upper and lower jaws. The servant, he believed, took them out. Of what immediately followed he could remember nothing more than that he became much more ill, with difficulty of breathing, and a sense of choking and suffocation, in which, in great anxiety and alarm, he sent for medical help. He was found suffering with much difficulty of swallowing and some dyspnoea. His tonsils appeared much enlarged and unusually red. These symptoms were treated, and in some measure relieved; and when one set of his teeth was missed on the day after the beginning of his illness, his medical attendants, who suspected that they might have been swallowed, were begged not to speak of them to him, for fear of the excitement and alarm that such a suspicion might excite in him. All the severity of his symptoms being subdued in a few days, the patient returned to his house at Rhyl, where Mr. Theed, as usual, attended him. For the first few days, Mr. Theed saw appearances of slight inflammation of the fauces, but these soon subsided; from that time nothing morbid could be seen in his throat. He had considerable and increasing difficulty of swallowing, was obliged to drink very slowly, and to cut all his solid food into very small fragments, and force them down his throat with gulping. Occasionally he was almost choked by food becoming involved in a tenacious mucus, which appeared to be secreted in large quantity at and beyond the fauces. Occasionally, also, he vomited after taking food. He had frequent short, "hacking" cough; and once or twice hawked up a little blood. He suffered no considerable pain; but felt constriction about his cricoid cartilage, and always referred to that part as the seat of obstruction hindering his swallowing. His voice was rough and rather hissing; his breathing sometimes with wheezing.

Many times, while watching these symptoms, Mr. Theed suspected that they were due to some foreign body in or near the larynx: but he could see none; and the patient, as often as inquiries were directed to this point, declared somewhat impatiently that the thing could not be. Especially when with the tardily given permission of his relatives, he was asked if the false teeth, which he had lost on the night of his illness, might not have slipped into his throat, he maintained that it was quite impossible: for what he had lost was a whole upper set which, he believed, had been unluckily thrown away with the water into which they were put at night. The piece was far too big, he said, to go into his throat or to be there without his knowing it. However, as none of his symptoms diminished, and he was becoming very thin and feeble, Mr. Theed, in November, brought him to London for consultation. His feeble appearance, his dull pale face, his emaciation, and the recital of his case, made me fully expect that he had cancerous stricture of the upper part of his œsophagus. On examining his

mouth and fauces, I could see nothing unnatural, till, on extremely depressing the back of the tongue, I saw something white near his epiglottis—but too obscurely to guess what it was. Passing my finger to the side of the epiglottis, I felt teeth there, and soon hooked out the whole lost set, with their gold palate-plate and other fittings.

The piece lay between the base of the tongue and the epiglottis, very closely fitted to all the surface on which it rested. The teeth were directed upwards, and I believe the incisor teeth were next to the epiglottis, and the notch in the palate-plate next to the root of the tongue.

The most remarkable point of this case, next to the fact of the patient being unconscious for more than three months of what he had in his fauces, is that a thing so large could be out of sight at the root of the tongue. It may be well, therefore, to repeat that it was completely invisible, except when the base of the tongue was exceedingly depressed, and even then only a small part of it was obscurely seen. To this, and to the patient's dread of any other examination than that with the eye, it must be ascribed that the lost teeth were not discovered long before I saw him.

It may be worth notice, that the patient referred to the parts about the cricoid cartilage, as the place of obstruction in swallowing. This may be an instance of transference of morbid sensation, similar to that by which the irritation that excites coughing, wherever its true seat may be, is felt as if it were at the top of the larynx. A similar deceptive transference of sensation was observed in a lady whom I saw with what I supposed to be cancerous stricture of the upper boundary of the œsophagus. She always pointed to the cricoid cartilage as the place of obstruction: but her disease proved to be a cancerous ulcer of the tongue immediately in front of the epiglottis, and her pharynx and œsophagus were healthy.

Since the removal of the displaced teeth, the patient has regained health, and Mr. Theed's last report of him is, "I think him as well as before" the accident.

P. S.—Since this narrative was in print, Mr. Theed has written that the patient has had "a very severe attack of epilepsy, which lasted for five or six hours, during which time the convulsions were so violent that if I had not removed (though with great difficulty) his *full* set of teeth, he would inevitably have broken them into pieces. This, I think, elucidates the previous mystery."—*Med. Times and Gaz.*, Jan. 18, 1862.

OPHTHALMOLOGY.

49. *Treatment of Symblepharon*.—On the 6th of June, 1860, the editor of this Journal communicated to the Philadelphia College of Physicians a very brief notice of a case of symblepharon successfully treated by dissecting apart the adherent surfaces, and preventing their reunion by interposing a shield of tin foil, and maintaining it in its position until the surfaces had healed. (See No. of this Journal for Jan. 1861, p. 116.) Mr. J. C. WORDSWORTH, assistant surgeon to the Royal London Ophthalmic Hospital, in a recent article (*The Royal London Ophthalmic Hospital Reports*, Vol. III. No. II.), in commenting upon this case expresses doubts as to the permanency of the cure. It may be here stated that when the operator last heard from the patient, a year after the operation, there had been observed no tendency to a recurrence of the trouble, on the contrary, as was hoped, the levator muscle of the upper lid had increased in power, so that the previous drooping of the lid was diminishing. The Editor may add that he has not lately heard from the patient, but feels confident that he should have done so, had not the case gone on satisfactorily.

Mr. Wordsworth assumes that glass shields are unknown in this country. He would have been disabused on this point, had all the remarks of the Editor, with the discussion which took place at the meeting of the College, been reported.

MR. J. PRIDGIN TEALE, in a subsequent No. of *The Royal London Ophthalmic Hospital Reports* (Vol. III. No. III.), describes a new operation for the relief of symblepharon, by transplantation of conjunctiva; and he relates four

cases in which he has successfully performed it. These cases, Mr. Teale says, appear to establish the following points:—

"1. That the conjunctiva may be transplanted without losing its vitality or properties.

"2. That a symblepharon may be replaced by loose movable conjunctiva, at least equal in breadth to the flaps originally transplanted.

"3. That a comparatively small breadth of conjunctiva introduced into the situation of a symblepharon is sufficient to afford greatly increased, if not perfect, freedom of motion to the eyeball, a freedom which continues to increase for many months after the operation.

"4. That where the conjunctiva of the lateral and upper parts of the eyeball has not been damaged, flaps of a quarter of an inch in breadth may be taken away without giving rise to any deterioration of the parts whence they have been taken.

"5. That in separating the adherent eyelid from the globe, it is not necessary to dissect off from the cornea any portion of skin that may be adherent to it, but that it is better to commence the separation of the lid at the margin of the cornea, leaving the opaque apex of the symblepharon adherent to the cornea."

50. *Arsenic in Pustular Ophthalmia*.—MR. CRITCHETT has of late often prescribed arsenic in certain chronic forms of ophthalmia occurring in young persons. He speaks very highly of its efficacy. It is chiefly in intractable cases of pustular ophthalmia which have lasted far beyond the usual period, and are attended by intolerance of light and a feeble and irritable state of the system generally, that this remedy seems useful. In the same class quinia and iron are often very effectual, but the arsenic not unfrequently manifests peculiar and superior powers. If desired, it may be conveniently prescribed in combination with iron. For children, the common steel wine is a very suitable vehicle. For a child of five years old a minim of Fowler's solution in a teaspoonful of steel wine, given three times daily, is an appropriate prescription, and one under which many a case of severe pustular ophthalmia will recover with great rapidity.—*Med. Times and Gaz.*, Jan. 4, 1862.

MIDWIFERY.

51. *Protracted Gestation*.—DR. M'COWAN related to the Obstetrical Society of Edinburgh the history of a woman who, in her third pregnancy, carried her child three months beyond the period at which it had been calculated that it should have been born. The child had to be extracted with the forceps, and was found to have a greatly ossified head, and to be largely developed round the shoulders and the pelvis, so that, although there might have been some miscalculation as to the exact dates, there seemed little doubt that utero-gestation had been protracted for an unusual length of time. Calculating from about fifteen days after the date of the last menstruation, the child should have been born in the latter part of May, but it had not been born till the 20th of August.

Dr. Bruce remarked that patients sometimes made considerable mistakes in their reckoning, and he had lately delivered a woman two months after it had been calculated that the child was due.

Dr. Moir observed that, in the case related by Dr. M'Cowan, the data were not determined with sufficient precision to admit of its being cited in a legal court, although, from the state of the fetal head, and the previous history of the patient, he had himself little doubt that gestation had in her been protracted, though not, perhaps, so long as three months beyond the normal period.—*Edin. Med. Journ.*, Dec. 1861.

52. *Protracted Retention of Blighted Ovary*.—DR. UVEDALE WEST exhibited to the Obstetrical Society of London (Feb. 5, 1862) a specimen of this which had come away two days previously, after being retained until the expiration of

twelve months from the commencement of pregnancy, the embryo having probably perished as early as the end of the fourth month. Independently of the interest attaching to the specimen as an example of protracted retention of blighted ovum, Dr. West thought the case instructive, as being one in which both patient and doctor had been right and wrong at the same time; the former having to the last persisted in the belief that she was not only pregnant, but normally so; the latter having told the patient, when consulted by her after the expiration of her nine months, that she was not only mistaken, but altogether so. The ultimate expulsion of the mass exhibited, however, explained everything.—*Med. Times and Gaz.*, Feb. 15, 1862.

53. *Puerperal Fever in the new Lying-in Hospital at Munich.*—This Hospital was opened in 1859, and puerperal fever soon became endemic there, and every year since it has been visited by this terrible scourge. The most intense epidemic was that of last year, and a correspondent of the *Medical Times and Gaz.* (Feb. 8, 1862) gives some of the more important observations which were made at that time by Dr. HECKER, Professor of Clinical Midwifery, and Dr. BUNL, Professor of Pathological Anatomy.

During the summer and autumn of 1859, the sanitary condition of the women in the Lying-in Institution was, on the whole, satisfactory. Certain premonitory symptoms of an epidemic of puerperal fever having been observed towards the close of the year, the first bad cases of that disease occurred in the middle of January, 1860. The epidemic lasted from that time till July. There were 663 births in the six months, and 80 women were affected with the fever, that is, twelve per cent. Of these 80 there died 33, that is, 41 per cent. of those affected, and 5 per cent. of the whole number. Simultaneously with the puerperal fever a very dangerous affection of newly born infants was observed, which was quite analogous to the disease from which the mothers suffered. Amongst the 33 children of the 33 women who died, 20 also died within the first week, and evidently under the influence of the epidemic. Of 49 children borne by 49 women who recovered, 12 died from the same cause. The disease of infants showed the following forms:—

1. Acute dissolution of the blood; of which 13 cases were observed. The children collapsed soon after birth in an extraordinary manner; the skin assumed a dirty yellow colour; food was refused, the respiration became accelerated, and screams were heard as in acute hydrocephalus. Death generally ensued within 24 hours, and the post-mortem examinations which were made in every case with the utmost care, did not show any local disease; only the blood appeared smeary, and there was a striking putrefaction of all organs, which are prone to this process, and which had evidently commenced during life; this was observed even if the cavities of the body were opened soon after death. Cadaveric spots were spread over the whole surface of the skin. This septic condition generally began immediately after birth; but in one case Professor Hecker satisfied himself that it had already commenced in utero. This was the case of a woman in her second pregnancy, and who fell ill during parturition with violent vomiting of green matter; she then gave birth to a dead child, and died herself on the third day after delivery. The child was a well developed girl, of 6½ pounds, and had died during parturition without any visible cause, as the umbilical cord had not been constricted, and the second period of parturition only lasted an hour and a-half; from which it was fairly concluded, that the illness of the mother, which had come on during parturition, had caused the sudden destruction of the life of the infant. If in such cases of dissolution of the blood, a local disease occurs, this affects the respiratory organs; the autopsy showing signs of lobular pneumonia having commenced. In two cases there was extensive hepatization of both lungs, and putrid exudation.

The second class of cases consisted of septic inflammation of the umbilical vessels, with its sequelæ. Three cases of arteritis umbilicalis were observed, one of phlebitis, and four of more or less diffuse peritonitis, with discoloured exudation matter. In these cases there were also morbid appearances in the skin, viz., erythema, which in one case extended over the whole surface of the body

with a rapidly fatal result; and erysipelas migrans with strong induration of the affected parts, and which appeared several times in the face.

A third class of cases was characterized by atrophy. This form of the disease was observed in four cases; the subjects being originally strong children, and no cause being apparent but the miasma.

Regarding etiology, it appeared that the stay of the pregnant women in the Lying-in Hospital disposed them to puerperal fever. The majority of patients fell ill within the first week of their stay in the Institution. Of those who entered it during parturition, 13.8 per cent. fell ill, while of those who had been in it from 1 to 4 days before delivery, 29 per cent. became affected. If, however, the pregnant women remained longer in the Hospital, they appeared to become callous to the contagion. In the wards for poor patients the disease was much more frequent than in those for private cases. It would seem possible that the clinical instruction of the students in the examination of pregnant and parturient women might be the cause of the affection, and M. Semmelweiss even now holds the opinion that the origin of the disease is entirely due to infection with cadaveric poison. But several objections seem to be fatal to this supposition. During the epidemic I am speaking of, there was no occasion for such an infection of the pregnant women taking place. The autopsies were never made in the Lying-in Institution itself, but in the anatomical theatre; and neither the students nor those who had the women under their care, ever touched the dead bodies. Besides, the hands were always well washed before an examination was made. Moreover, it happened that infants fell ill and died of puerperal sepsis, whose mothers made a good recovery. This fact is not consonant with the assumption of an infection by cadaveric poison. It would be sophistry to say that, although the mother seemed to be well, she was nevertheless infected; for where there is no morbid symptom, we are not justified in assuming the existence of a complaint. Another objection against the theory of M. Semmelweiss would be, that the women fell ill in sets, and that sometimes not a single case of fever occurred during a fortnight. It has often been stated that there was much more disposition to contract the fever in women, who had had a protracted labour; and that primiparae were, therefore, more exposed to danger than such as had already borne children before. The observations made here on this point during the last epidemic prove that many fell ill whose labour had been very quick, and that the duration of the labour had no relation to subsequent illness. I will also mention that of 80 cases in which fever occurred, birth was accomplished by Nature in 75 cases, while only in five instances operations were necessary.

The researches of Professor Buhl concerning the pathological anatomy of this disease are of importance. Proceeding from the fact that the inner surface of the uterus is always affected, he looks upon this as the starting point of all other morbid changes. The disease spreads from the place mentioned along three different roads, viz., the mucous membrane of the tubes, the bloodvessels, and the lymphatic vessels. In conformity with this circumstance there are three principal forms of puerperal fever. The first is puerperal peritonitis without pyæmia; the irritant matter produced in the uterus spreads through the canal of one or both tubes, and through their orifice into the peritoneal cavity; their tissue becomes swollen, loosened, and injected, and the canal is filled with thick pus. There is either unilateral inflammation of the serous covering of the ovary and the womb, or general peritonitis. This form is most frequent if there be no epidemic; but during such an one it is very rare, and only occurs in connection with one of the other forms. Not a single case of this kind occurred during the epidemic I have described. This form is not nearly so dangerous as the two others, recovery being not uncommon; and if death results, this is generally the consequence of general peritonitis.

In the second form, which is puerperal pyæmia without peritonitis, the inner surface of the womb constitutes, as it were, one large wound, and the affection is traumatic. There are symptoms of absorption of putrid matter by the veins, and we find not only normal coagula, but also thrombi containing pus, and prone to putrefaction, especially in the veins at the insertion of the placenta; also in the veins of the plexus pampiniformis, the spermatic veins, the vena cava inferior, the renal or crural vein and the cavities of the heart. There is often em-

bolic inflammation, followed by suppuration and gangrene of the lungs, the spleen (which is always enlarged), the kidneys, the eyes, the brain, and other organs. The characteristic feature of this form is that, unless a complication should be present, which is rarely the case, there is no peritonitis. It is more dangerous than simple peritonitis, and may occur sporadically; but it is more frequently epidemic, although neither so common nor so intense as the third form. It is not unfrequently an indication that the violence of the epidemic is on the decrease. For while pyæmia without peritonitis scarcely ever ends in death before the ninth day, but is generally protracted over two, three, and more weeks, the third form generally proves fatal within the first week after parturition, and in some cases even the very day after delivery, or a few hours after it. This second form was, in the epidemic I have described above, only observed four times.

The third form is entirely different from the second and the first. There is always peritonitis, but no thrombosis of the veins, which are merely filled with thin, discoloured blood. The disease spreads by absorption through the lymphatic vessels and the connective tissue which envelopes them and the blood-vessels, and where yellow coagula, pus and putrid matter, are accumulated. Besides this local creeping of the disease, there is also general infection by absorption of poisonous matter in the blood, either immediately from the womb or from the infected lymph. This form may, therefore, be called puerperal pyæmia with peritonitis, or pyæmia with lymphangitis. It is the most malignant form regarding intensity, rapidity of course, and fatality, and it is also the most frequent in epidemics of puerperal fever. Of thirty-nine fatal cases in the last epidemic, thirty-five belonged to this form. If death ensued very rapidly, there were only general septic appearances in the body; and local changes only became apparent if the disease was of a somewhat longer duration.

54. *Pathological Anatomy of Puerperal Fever.*—Professor BUNL, of Munich, having examined the bodies of fifty women who died of puerperal fever, states that a constant and characteristic appearance is a pappy, red or dark brown or grayish-black mass lining the inner wall of the uterus, giving forth sometimes a gangrenous and sometimes a putrefactive smell. It is this matter which supplies the poisonous infection of puerperal fever; but as to the cause of the production of the fever differences of opinion prevail: some regarding it as the consequence of the immediate passage of poisonous matter into the wound, while others think that a preliminary poisoning of the blood by miasmata takes place, the corrupted mass being only a secondary result. Anatomically, we may distinguish two forms of puerperal fever—puerperal pyæmia and puerperal peritonitis—forms which may be clinically distinguished, as it is of importance in prognosis that they should be so.

Puerperal pyæmia does not usually prove fatal before the ninth day, and frequently not until after the third week. It is chiefly met with where the disease does not put on an epidemic form, the veins being the channel of infection: coagula, accompanied by suppuration, being found in the veins of the walls of the uterus, in a pampiniform plexus or in a spermatic vein. In no instance did the author ever find both spermatic veins obstructed, and in only one case was the entire vena cava inferior filled with adherent coagula. These coagula and their subsequent caseous metamorphosis are quite sufficient to establish the existence of puerperal pyæmia, the so-called metastatic abscesses being seldom met with. Edema of the lungs and ecchymosis of the pleura were frequently met with by the author.

The puerperal peritonitis was more frequent, more violent, and more rapidly fatal than the puerperal pyæmia, inasmuch as death sometimes occurred within two days after delivery, and in but few cases was delayed to the third week. Of the 32 cases of this variety only 2 were chronic, proving fatal in the course of six or eight weeks. In all the cases purulent exudation was found, in 18 instances occupying the tubes, and in 14 the subserous tissue of the uterus. The two conditions were found combined in only 4 instances, and a plugged condition of the veins was observed only in 5 instances. Of the 18 instances in which puerperal pyæmia occurred, in only 2 was there pus in the tubes, and in only 1 subserous effusion of pus; so that of 20 cases of tubal suppuration, in 18 peritonitis

was present, and of the 14 cases of subserous suppuration peritonitis occurred in 13. On the other hand, of 23 cases of purulent coagula of the veins in only 5 did peritonitis occur, and in all these there was subserous or tubal suppuration also, and in 16 cases in which these parts exhibited no pus, no peritonitis took place. The disease of the veins thus bore no relation to the occurrence of peritonitis. It results from these facts, that peritonitis may arise either from the immediate passage of the poisonous material from the uterus through the tubes, or from the conveyance of this from the inner wall of the uterus by the lymphatics. The supposition that the pus may have proceeded from the peritoneum into the tubes is negatived by the fact of these having been free of it in fourteen cases; and the pus of the peri-uterine, subserous tissue or of the lymphatic vessels must be regarded rather as a consequence than a cause of the peritonitis, inasmuch as it was absent here in twenty instances. The prognosis is not alike in these two modes of origin of the peritonitis. That induced by pus from the tubes is a much slighter and more simple inflammatory process, met with when there is little or no epidemic extension of the disease; while the peritonitis resulting from lymphatic absorption is a much severer form of disease, preceding or accompanying general infection, and is especially met with in the epidemic form.

In all of the principal forms of puerperal fever, besides the morbid uterine appearances there were found—1. Almost constantly swelling and watery infiltration of the retro-peritoneal, inguinal, and (though seldom) the mesenteric glands. 2. Osteophytes on the internal surface of the cranium. 3. In several cases, especially in pyæmia and lymphatic absorption, a distension of the cortical substance of the kidney, together with microscopical appearances corresponding to the acute stage of Bright's disease. In only two of fifty individuals was tuberculosis found.—*Med. Times and Gaz.*, Feb. 1, 1862, from *Froriep's Notizen*, 1861. No. 13.

55. *Coccygodynia*.—This affection, to which attention was drawn by Professor Simpson, a short time since, is said by SCANZONI to be far from rare, for he has seen twenty-four cases of it during the last four years. It has been, he says, frequently mistaken for a symptom of some disease of the genital organs, which often accompanies it; and also for hemorrhoidal pain. Dr. Scanzoni has never observed the disease except in women who have borne children; and in nine cases, the patients distinctly traced the origin of their pain to the date of their confinement. Of nine women, six had only had one child; and in five cases, the pain appeared after instrumental labour.

We may, therefore, consider that the act of child-bearing is the essential, if not the sole cause of this pain; and we can readily understand why this should be the case, when we recollect the injuries to which the coccyx is liable during confinement. The violent forcing of the lower part of the bone backwards, sometimes to the extent of half an inch, and the stretching and tearing of the attached ligaments, are quite enough to excite inflammation and exudation between the bones which form the coccyx. That this really does frequently happen is shown by the researches of Luschka, who pointed out the frequent ankylosis of the bones of the coccyx which takes place. Dislocation of the bone, of the kind here spoken of, must evidently cause pressure upon and injury of the nerves, by the tearing and rupture of the ligaments which naturally protect and sustain them. Hence, we can readily understand why the delivery of the child should be the cause of coccygodynia.

The persistence of the affection is to be ascribed in part to the peculiar relations of the coccyx to the parts around it, and in part to the diseases which so frequently accompany it. When any change in the position or structure of the bone has taken place, every movement of the lower extremities, sudden sitting down or rising up, or even evacuation of hardened feces, must produce a movement of the bone. Affections of the neighbouring organs also aid in keeping up the coccygodynia. Chronic metritis, ulcerations of the os uteri, anteversion and retroversion, very often accompanying coccygodynia. Dr. Scanzoni cannot, indeed, recollect a single case which was not attended by some one of these affections. He has, for example, seen cases in which the coccygodynia immedi-

ately ceased, when an anteverted uterus was reduced to its proper position; or when arrested menstrual function was removed. In these cases, we must consider that the persistence of the coccygodynia (originally excited by the act of parturition) is maintained by the affection of neighbouring organs.

As regards the treatment, Dr. Scanzoni considers that it is of the first importance to remove the affections of any neighbouring organs. He is satisfied that no local treatment is of any avail so long as any of the neighbouring organs either press upon the bone or excite the coccygeal nerves. The first business of the physician, therefore, is to endeavour to ascertain the state of the neighbouring organs and parts. When the coccygodynia is recent, a few leeches, or cupping, should be frequently applied over the bone, warm effusions, hip-baths, etc. The patient should maintain a horizontal position, and refrain from all violent exertion. The bowels should be kept loose. These means are sometimes followed by a temporary cure; but the pain generally returns after a time. In such cases, when there is no sign of inflammation, Dr. Scanzoni has found subcutaneous injections of morphia of great service; and he cannot, like Dr. Simpson, regard them as merely palliative. He has not found the sulphate of atropine so efficacious as the morphia. Dr. Scanzoni has not yet tried subcutaneous section of the muscles and tendons, as recommended by Dr. Simpson; for he had never met with a patient in whom the intensity of the pain was such as to require such an operation, which is not without danger.—*British Med. Journ.*, Dec. 28, 1861, from *Wurzburger Medicinische Zeitschrift*.

56. *Painful Muscular and Fascial Contractions along the Vaginal Canal—Vaginodynia.*—Prof. SIMPSON stated to the Obstetrical Society of Edinburgh (Nov. 14, 1861) that he had lately seen a number of cases, and he had seen them from time to time for years, where painful muscular or fascial contractile bands existed in the sides or along the course of the vagina. He had known some of these cases to have been mistaken and treated for various alleged affections of the uterus or its appendages. The pains complained of were, sometimes, principally sympathetic or reflex, and referred to the uterus or other parts, and often aggravated by all movements calling the pelvic muscles into action. He had under his care at present a patient whose chief complaint was a constant disagreeable pain in the sacral region; another who had the same severe kind of pain in the left iliac region; while a third could not walk because of the pain which she felt in the pelvis whenever progression was attempted. In this class of cases the uterus and ovaries would, on careful examination, be found healthy, but a tense, corded, transverse band could be felt at some part of the vaginal wall, and usually, if not always, on one side of it, and placed, as it were, more or less deeply beneath or below the mucous membrane. The band or cord was most commonly placed about an inch above the vaginal orifice. It varied considerably both in thickness and tenseness in different cases. When the cord was touched and stretched with the finger, the patient complained of more or less severe suffering; and this was the pathognomonic mark of the disease. Sometimes the patient only experienced pain at all when the vagina was touched; and these cases usually came under treatment in consequence of being unable to submit to marital intercourse. He had one patient under treatment who could not bear at first to allow herself to be examined vaginally without chloroform, because of the pain experienced from the touch of the finger. Painful and distressing as these cases were, they were very amenable to treatment—division or rupture of the tight and contracted band being usually sufficient to afford complete, and often instantaneous relief; and in the milder form of cases, sedative applications were sometimes sufficient. The method he had usually adopted for the cure of very severe cases of this kind was, after chloroforming the patient, to divide the tight band by means of a tenotomy knife introduced underneath the vaginal mucous membrane. It was a bloodless operation, and had never been attended with any worse consequences than the formation of a thrombus, which had taken place in one patient and had delayed her recovery. He had tried also to effect the object of stretching or rupturing the band by dilating the vagina forcibly with the fingers, whilst the patient was asleep with chloroform. The principle of cure

was the same as that employed for the relief of fissure and spasmodic contraction of the orifice of the rectum. But less severe means were occasionally successful. Patients afflicted with this complaint were usually relieved, and sometimes cured, by the daily introduction into the vagina, for a length of time, of local sedatives, such as belladonna ointment and chloroform. A small cup-like indentation was made with the finger in an ordinary belladonna pessary; a few drops of chloroform having been poured in, and then shut in by putting a piece of ointment over the orifice, and then the whole was introduced into the vagina, where the ointment slowly dissolved, and became absorbed along with the chloroform. As to the probable nature of these painful contractions, he (Dr. Simpson) could not supply any very definite answer, but he thought they depended in different cases either, first, on a kind of permanent spasm of some of the muscular fibres around the vagina, of the same nature as the spasm of the sterno-cleido-mastoid muscle, which produces torticollis; or, secondly, they were due to contractions going on slowly in some portions of the pelvic fascia, perhaps resulting from a kind of subacute inflammation, and resembling those often painful contractions of the palmar fascia, which are the acknowledged cause of "crooked-in fingers." Dr. S. believed that the common anatomical seats of these painful vaginal contractions were either in the bundle of muscular fibres forming the anterior border of the levator ani, or in the duplicatures or edges of the pelvic or recto-vesical fascia at the points where the vaginal canal perforates the fascia and receives insertions and prolongations from it. These contractions sometimes appeared in patients in whom no previous disorder of any of the pelvic organs could be ascertained to have existed; and he had lately seen one patient who was the subject of it, and who had never been able to allow her husband to approach her, so that in her the morbid condition must have been present before marriage, although she had never been in a position to be made aware of its existence. Instances, however, like this last oftener belonged to a class of cases where apparently the stricture was not, as in the preceding class, in the course of the vaginal canal, but was situated at its very orifice, independently apparently, in most, of all disease there except super-sensibility and spasm of the sphincter of the vagina, but traceable in others to hyperæsthesia of the mucous surfaces of the vulva or vagina, resulting from irritable eruptions or other morbid states of these mucous surfaces.—*Edin. Med. Journ.*, Dec. 1861.

HYGIENE.

57. *Early Vaccination.*—By many practitioners the vaccination of young infants has been objected to, as well in consequence of certain severe morbid phenomena to which it is supposed to give rise when performed at too early an age, as from the difficulty of then placing the system fully and permanently under its prophylactic influence. In 1821, M. Husson, a skilful vaccinator, declared that from twenty years experience he had observed no notable difference in the results of the vaccinations performed upon infants a few days old, and those practised in persons of a more advanced age. From this opinion several authorities of no mean weight dissent, including Bousquet, Barron, and, more recently, E. Barthez. The latter refers the death even of young infants, in many instances, to the too early performance of vaccination. We learn from a most interesting paper, read in February last before the French Academy of Medicine, by Dr. DEPAUL, that the views announced by M. Barthez gave rise to much discussion at one of the meetings of the *Société Médicale des Hôpitaux*; in the course of which M. Legroux stated that he vaccinated all the new-born infants during his term of service. Believing that when accidents did occur they were caused by the number of punctures, he, finally, made only one in each arm. Since then he has not met with the slightest unfavourable occurrence that could be attributed to vaccination. M. Béhier also declared himself in favour of early vaccination. He has performed it on the second day after birth

without the occurrence of any accident. M. Blache, who was formerly in favour of early vaccination, has become opposed to it, since he has repeatedly seen bad effects result from it at the *Hôpital Cochin*. He believes smallpox to rarely occur in infants under two months old, excepting when the disease is epidemic; hence, before then, vaccination, as a general rule, is not demanded.

In the *Union Médicale* there is a communication from Dr. Ragaine, of Mortagne (Orne), referring to a memoir presented by him to the Academy, in 1859, in which he announces that he had vaccinated over four hundred infants, from eight days to one month old, and in all the vaccination had been mild and favourable, unattended with either roseola, erysipelas, or enteritis. Some of the infants had diarrhoea, but this was referable to other causes than to the vaccination.

Dr. Laforgue, of Toulouse, in the same journal, states that when he first took charge of the maternity and nursery of *Hôtel Dieu*, he was astonished at the very early period after birth at which infants were there vaccinated, but he soon became convinced that the fears he had entertained in respect to such early vaccinations were groundless, and the practice was pursued by him, and without any accident in the case of healthy children who are secured from those morbid influences which are so fatal in lying-in hospitals and in nurseries.

In the above institution a series of experiments was instituted with the matter produced by inoculating the cow with the *grease* of the horse. Among the infants vaccinated with this matter, twenty-eight were between one and sixteen days. Six punctures, three in each arm, were made in each case, all of which gave rise to the characteristic vesicle. A single one of these infants, fourteen days old, was attacked with severe erysipelas, which extended over the entire body; but, nevertheless, terminated favourably. M. Laforgue has found that the inflammatory action, to which vaccination gives rise, was, in general, less in early infancy than it is in older subjects. From his observations he infers that vaccination performed in early infancy is unattended with danger; and that the accidents observed subsequent to the operation are due to causes foreign to it. He does not, however, recommend vaccination to be performed before the third month after birth, excepting in lying-in hospitals and in public nurseries, or during a variolous epidemic.

In the *Gazette des Hôpitaux* (Oct. 1861) there is a communication from Dr. Godfrey, of Rennes, announcing that since 1840 he had vaccinated all the infants placed in the clinic, from one hour after birth to seven days, which was the longest period to which he deferred it. He always made three punctures in each arm, and has never seen the slightest evil result from it.

Dr. Robert, of Guyonville (Haute-Marne), in a memoir sent to the Academy, remarks that he has had thirty years practice, and has vaccinated more than twenty thousand persons. In the commencement of his practice he was accustomed to defer vaccination until after the third month, but, upon a solicitation, he had every year vaccinated a few infants, from one to twenty days old, and has not found subaxillary engorgements, phlegmons, or erysipelas to follow more frequently than when the operation is not performed until some months or a year after birth. In 1200 vaccinations of children, aged between one and thirty days, there occurred, during or after the course of the vaccination, once in three hundred cases, an attack of simple erysipelas; once in four hundred and seventy-seven cases, the occurrence of phlegmon, and once in three hundred cases, submaxillary engorgement. The same accidents were rather more frequent in infants vaccinated after they had attained three months. Thus, erysipelas occurred once in two hundred and ninety-five, phlegmon, once in four hundred and twenty, and submaxillary engorgement, once in two hundred and fifty.

In the maternity of Paris, according to M. Danyau, from March 24th, 1859, to July 1st, 1861, seven hundred and thirty-five infants were vaccinated—in all cases shortly after birth. Two hundred of these remained throughout the course of the disease; among these only three accidents were observed, viz., a phlegmon, which was healed, and two cases of erysipelas of the arm, one of which terminated favourably, and the other was fatal.

Dr. Depaul remarks that in the young infants vaccinated by him, in the obstetric clinic, as well as in those vaccinated at the Infant's Hospital, no injury

was observed to result that could possibly be attributed to the too early performance of the operation.

From the facts and consideration presented by Dr. Depaul, he believes it to be proved: 1st. That vaccination may be performed on the infant, shortly after birth, without the liability of its being attended with any more serious consequences than when the operation is postponed to a later period. 2d. In the case of infants placed under circumstances which diminish greatly their liability to exposure to variolous infection, vaccination may, without inconvenience, be postponed until they are two or three months old. *Mondeur des Sciences, Med. et Pharm.*, Feb. 1, 1862.

58. *Crust of Bran in the Manufacture of Bread.*—The authorities judiciously attach much importance to the details of the manufacture of bread, and on the other hand, the trade endeavours to avail itself of certain scientific data to supply the therapist with hygienic and medicated bread. *Panification* is a question of paramount interest; and we can readily conceive why a surgeon holding an eminent position in the navy, Professor Fonssagrives, has assigned to the subject a prominent place in his excellent treatise on elementary hygiene which has just been published by J. B. Baillière and Sons.¹

"Wholesome bread," say the Instructions of the Military Board of Health, "must be well leavened, *i. e.* present numerous holes in all its parts; it must exclude its own peculiar agreeable odour, the crumb must be homogeneous, elastic, and the holes must reappear after slight pressure of the crumb; in short, the crust must be yellow, sonorous, and everywhere adhere to the crumb. Bread is of bad quality, badly prepared or baked, when its smell is faint or mouldy; when its colour is too dark or unequal; when it contains lumps of flour; when the crumb rolls up into compact masses, which do not resume their shape when pressed, or is diffident and greasy; finally, when the crust is pale, soft, or burned, and detached from the crumb." To be well digested, bread should be eaten fifteen or twenty hours after it has been baked. The desire of purifying to its utmost limits flour intended for bread, has induced the directors of meal-stores to separate from it principles, the assimilation of which was turned to good account. Bran, for instance, performs in the digestion of bread a part, the importance of which, acknowledged in our days by American practitioners, and among others by Warren, had not escaped Hippocrates: "Brown bread," says he, "is sleekative and aperient; white bread feeds more, and is less laxative." This is so true, adds Mr. Fonssagrives, that the question has been asked in latter times, and not without some reason, if the very great frequency of constipation does not originate in the bread being made of flour too finely sifted. It is, however, a positive fact that a coarser bread, made of a mixture of various flours or rather rye bread, very efficaciously removes torpidity of the bowels.

Mr. Fonssagrives considers as justly renowned in this respect the rye-bread of Ponscoff in Brittany, the taste of which is very savoury. The convalescent whose digestions are indolent may advantageously resort to its use; but in cases of habitual and stubborn constipation, this article of food is insufficient, and bran bread must be used.

"This bread," says Mr. Payen, "is much used in England. It is prepared with wheat, containing from 5 to 10 per cent. of bran. Its crust is dark-coloured and its crumb is brown. Persons who use it take it but once or twice a week and ascribe to it cooling properties due to the indigestible part of the bran, which in this case, acts mechanically in the same manner as white mustard seed."

Mr. Fonssagrives has frequently recourse in his own practice to bread made with equal parts of fine bran and wheat flour, and if the coarseness of its appearance does not deter them from its use, invalids derive much advantage from it in case of obstinate costiveness. A piece of bread weighing 3 or 4 ounces is eaten at each meal, and the latter is completed with ordinary bread. Dr. Lecharrier, of Bordeaux, has also adduced cases in which almost unconquerable constipation was removed by the persevering use of bran bread. It is specially adapted

¹ *Hygiène alimentaire des malades, des convalescents, et des valétudinaires, ou du régime envisagé comme moyen thérapeutique.*

to cases of intestinal torpidity connected with uterine disease; but its success, according to Mr. Fonssagrives, is frequently compromised by the carelessness of bakers, who refuse to prepare this bread by kneading it separately, a condition indispensable to its success: for bran bread, prepared simply by the incorporation of bran in a piece of kneaded dough, has an unpleasant aspect and no longer gives the results required.—*Glasgow Medical Journal*, Jan. 1862, from *Journ. Pract. Med. and Surg.*

59. *On the Bad Effects of Marriages amongst Near Relations.* By Prof. DUVAY, of Lyons.—A general interest is attached to the inquiries which have for their object the establishment upon positive facts of the bad effects arising from marriages contracted in certain conditions. Among these, one of the most important is the question of consanguinity, the dangers of which, in a sanitary point of view, have long passed unrecognized, and have only been suspected from time to time in consequence of the expression of opinion on the part of persons who, though they spoke with all sincerity, carried no scientific weight. At present it is different, and in this kind of alliance all enlightened men may see an efficient cause of infirmities, of constitutional diseases for the individual, and of degeneration for the race.

It has been said by the small number of practitioners who maintain the innocuousness of marriages among relatives, that the influence of these alliances is good or bad according as the parties are exempt from, or subject to, constitutional diseases; that consanguinity presents no disadvantages, and should even produce good results, if those who marry are exempt from all hereditary disease, or still better, are endowed with superior physical and mental qualities; but that, on the other hand, these marriages are necessarily hurtful if they take place between subjects affected with transmissible diseases, of which the intensity thus increases, not by simple addition, but by a sort of arithmetical, or even geometrical progression. Such is not the language of facts, which show that in pure consanguinity, isolated from all circumstances of hereditary disease, resides, *ipso facto*, a principle of organic vitiation. The following family history affords a full confirmation of this statement:—

M. and Mme. A., belonging to a department in the south of France, had six children, two sons and four daughters. All six attained a pretty advanced age, and all married; three of them married cousins-german, the other three married strangers. The following table arranges them into two categories, comparing the number of children each had, with the number of children who died young:—

1. Marriages between relations:—

	Number of children.	Of which died young.
Miss M. A. . . .	11	11
Mr. A.	8	6
Miss C.	5	3
	—	—
	24	20

2. Marriages with strangers:—

Mr. V.	6	2
Miss A.	7	0
Miss L.	6	1
	—	—
	19	3

It should be remarked that the three members of this family who lost the most children were not more delicate than the others, as might have been supposed had they been the three youngest of the family; they occupied the places 1, 3, and 6. The eleven children of M. A. all died of hydrocephalus at a very early age, one alone attained fourteen years. The six children which Mr. A. lost also died very young; the survivors are delicate. Of the three children lost by Miss C., one died at the age of fifteen days; a second, though delicate, attained the age of three years; the third died when twelve years old, of inflammation of the brain and its membranes.

A similar fact has been communicated to me by a justly esteemed professional brother.

In 1809, M., a merchant, in good health, married his niece, a robust and healthy girl. Eight children were the fruit of the marriage; of these, seven died before the age of four years of convulsions or hydrocephalus; the only survivor is a daughter, now thirty-three years old, who is very delicate, and whom I have been attending during several years with the view of moderating the severity of a *psoriasis diffusa* which has existed from her earliest infancy, and the existence of which, perhaps, saved her from the fate of her brothers and sisters.

We sometimes find ANOMALIES OF ORGANIZATION result from the marriages under discussion. There is at present in the clinical ward of the Hôtel Dieu a patient with a peculiar deformity of each foot. On the left side the great toe is united to the second, the third and fourth are united in the same way, the fifth is isolated. All the phalanges are perfect, the union being only by means of the soft parts. On the right side the toes are united in the same manner as on the left, only the phalanges have partly disappeared. This man tells us that his father and mother were first cousins.

In the case of the child of a man highly distinguished in chemistry, and who, contrary to the advice of his uncle, a man of great experience, had married his cousin-german, I found six toes on each foot.

The following fact is very remarkable; it is an example of a real endemic of *scordigitism*, of an entire population, under the influence of the assigned cause, being affected with this anomaly. It was communicated to me by my learned friend Dr. Potton, who had an opportunity of visiting the locality and inquiring into all the circumstances.

There is in the department of the Isère, a little village called Izeaux, isolated, lost, so to speak, in the middle of a little-cultivated, almost barren plain. The roads in this inhospitable district being bad, communication with a distance was formerly almost impracticable. The inhabitants of Izeaux, nearly abandoned to themselves, having little intercourse with the surrounding population, constantly contracted marriages among themselves, and therefore frequently with their own relatives. About the end of the last century, as the result of this state of things, there had been engendered and was kept up a singular monstrosity, with which thirty-five or forty years ago almost the whole population was affected. In this village men and women had on their hands a sixth finger, on their feet a sixth toe. When in 1829, and again in 1836, said Dr. Potton, I observed this singular phenomenon, in some of them this deformity was already in only a rudimentary condition, in several there was only a large tubercle, in the centre of which, however, was a hard, osseous body; a species of nail, more or less formed, terminated this appendix, which was fixed in the external lateral aspect of the base of the thumb. The person who accompanied me, though having no knowledge of medicine, made me observe that a favourable change was in progress, that a marked diminution of this monstrosity had been taking place since the customs of the inhabitants had been modified by the force of circumstances and their material progress, since the roads had been improved, and communication with those at a distance had become more frequent, since marriages had been contracted among strangers, since, in a word, a crossing of the breed had taken place. In 1847 Professor Duvay saw a manufacturer, a native of this locality, who had married and settled in Lyons. He was the subject of the deformity alluded to, but was the father of four children, who were free from it. At present this pathological anomaly has almost disappeared from the village of Izeaux.

CONGENITAL DEAF AND DUMBNESS is one of the most frequent results of the marriage of relatives. I have recently had six opportunities of noticing the coincidence. One of these is the following: A handsome, well-made woman called on me with her little boy, three years old, who had been deaf and dumb from birth; she was afraid that a similar misfortune would affect another son, four months old, who was completely deaf. In answer to my inquiries she stated that none of her relatives had been deaf, but that she had married her uncle. In another family of eight, where the parents were cousins-german, five were either

deaf from birth, or became so soon afterwards, the other three were the subjects of various bodily and mental infirmities.

Dr. Chazarain, in a thesis laid before the Faculty of Medicine of Montpellier, has brought together various facts which illustrate the same principle. From the position he held during several years in the Deaf and Dumb Institution of Bordeaux, he had peculiar advantages for investigating this point. Out of 39 boys in this institution, deaf and dumb from birth,

Were the offspring of relatives	.	.	6	
Among whom 1 had	.	.	2	brothers deaf and dumb.
" 1 had	.	.	3	" "
Total	.	.	11	

Of 27 girls deaf and dumb from birth, 9 were the offspring of relatives; of this number 6 had among them 7 brothers or sisters affected with the same infirmity, making in all 16. It will at once be seen that the number of the individuals belonging to the category of the marriages of relatives is increased by a half if the brothers and sisters affected in the same way are taken into consideration, whilst amongst those, the father and mother of whom were not related, there is barely a sixth to be added.

At present it is known that France possesses 29,512 deaf and dumb individuals. According to their distribution in the different localities it appears that the greatest number is found in the mountainous departments where means of communication are difficult. The department of Ariège has the highest figure, 161 to 100,000 inhabitants. We know that in Ariège the marriages of relatives are so frequent that the priests of that department have several times applied to the Faculty of Medicine of Montpellier to issue an authoritative reprehension of such unions. The faculty has no doubt been right in declining to do so, but the very request shows how important the matter was considered.—*Edin. Med. Journ.*, Jan. 1862, from *Gaz. Hebdom.*, vol. vii. No. 37.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

60. *Rupture of Heart by External Violence, without breach of Skin.*—Dr. J. H. WARD relates (*Med. Times and Gaz.*, Jan. 25, 1862) the following extraordinary example of this, which is interesting in a medico-legal point of view:—

"In the month of Nov. 1861, I was hastily summoned to a man, aged 26 years, whom my informant stated had shot himself with a pistol. On my arrival I found him extended upon a couch, dead, he having lived about ten minutes after the fatal shot was heard.

"When first seen, his shirt was on fire from the close proximity of the weapon when discharged, and his flannel vest was perforated. No external marks of violence were visible, except a slight mark on the skin beneath the left nipple, corresponding exactly with the opening in the vest. The mark was undoubtedly caused by the loop-end of a pistol-key, used for taking the firearm to pieces, which was picked up, along with the pistol, immediately after the report was heard. The hollow part or barrel of the key was partially filled with charred paper.

"Two days afterwards, I was requested by the coroner to make a post-mortem examination, which revealed the following singular facts: The features presented an unusually pale, even blanched, appearance; but besides this, and the mark on the chest already alluded to, there was nothing else of a remarkable character. On reflecting the integuments, the intercostal muscles between the fifth and sixth ribs on the left side, and underneath the external mark, were found to be perforated sufficiently to admit the finger; and on removing the sternum, the pericardium was found quite intact, but unusually distended. On cutting into the pericardial cavity, a considerable quantity of coagula and serum issued forth.

The heart was next carefully examined, and the left ventricle was discovered to be ruptured, longitudinally, to the extent of an inch on its anterior surface; in size, texture, and condition, the heart was perfectly healthy.

"It is remarkable that the skin was not perforated, no rib broken, the pericardium entire, and yet the intercostal muscles and left ventricle were perforated. The burning of the clothes, to a considerable extent, shows that the pistol was held close to the chest; and that what is technically called 'windage,' must have been considerable. In such cases the injury may be supposed to have been caused by a spent projectile. I am not aware that there is a parallel case on record. Many points of interest will occur to the students of forensic and military surgery; but I shall at present content myself with the above simple narration, only just pointing out, however, that though various records show that rupture of the heart takes place in the right ventricle almost three times as often as in the left, yet in this case the healthy structure of the left ventricle succumbed to the force.

"I may just add, in conclusion, that the heart was submitted to the Medical Section of the Royal Manchester Institution, at the December meeting of last year."

61. *Poisonous Effects of Coal Gas upon the Animal System.*—Dr. C. J. B. ALDIS read a paper on this subject before the Royal Medical and Chirurgical Soc. (Jan. 14, 1862). The author was induced to make the present inquiry in consequence of the examination of gas, as to its purity, now forming an important branch of the public health. He also wished to ascertain whether Cannel gas destroyed life sooner than common gas, since this question had arisen at a recent coroner's inquest. The third and fourth objects were, to counteract, if possible, by publicity, the want of precaution often displayed by gas-fitters in the discharge of their duties, and to try means for their recovery when rendered insensible. The following are the results of some experiments made by the author, Mr. F. G. Evans, engineer of the Chartered Gas Company, and Mr. Bannister, assistant engineer at the works in Horseferry-road, Westminster, November 8, 1861: A rat was first killed by means of a sharpened file thrust into the brain, for the purpose of comparing the appearance of some of the internal organs with those of others destroyed by the gases. The eyelids were closed; the lungs collapsed, and of a whitish colour; both ventricles of the heart contained black coagulated blood. Six experiments were then made—two with Cannel gas, three with common gas, and one with foul gas—upon rats, which were placed, in succession, under an inverted glass vessel, into which the gases were passed through a $\frac{3}{8}$ -inch cock and tubing with a $\frac{1}{2}$ -inch bore. The animals soon began to gasp, and became insensible after slight struggling. They lay motionless for a few seconds, when death supervened upon convulsive movements. The eyes were open and projected. The outer surface of the skull was exceedingly red in all that were examined, and dark fluid blood escaped from them. The superficial vessels on the surface of the brain were pinkish, and some were empty; the substance of the brain was pale. The lungs were collapsed, and of a pink colour; the heart was distended with darkish fluid blood; and the abdominal veins were congested. The eyes of the rat exposed to foul gas did not project so much as in the other examples. On opening the body a strong smell of sulphuretted hydrogen gas escaped. The brain and lungs were much congested, and of a brownish colour; the heart was greatly distended with dark fluid blood, the auricles being nearly black; and the abdominal veins were distended with dark blood. On November 6, the author examined six rats killed at the works in the same manner as the last six just mentioned, all of which had died with their eyes open. The post-mortem appearances were similar. In remarking upon the physiological results of the experiments, it may be observed that death ensued from the combined effect of different coal gases, the chief constituents of which are, after purification, light carburetted hydrogen, hydrogen, carbonic oxide, carbonic acid, oxygen, nitrogen, and the condensable hydro-carbons; whereas the foul gas contained, in addition, ammonia and sulphuretted hydrogen. Again, Cannel coal gas contains more hydro-carbon vapours than common gas, for which reason it probably destroyed life more quickly than the common

gas. The Cannel gas supplied by the Chartered Company is made with a mixture of Bog-head and Newcastle coal; while the common gas is made from Newcastle coal, enriched with a small percentage of Wigan Cannel. The impurities of common Newcastle coal gas, according to Lewis Thompson,¹ may be taken at $\frac{1}{2}$ part of ammonia, 8 parts of sulphuretted hydrogen, and 25 parts of carbonic acid in every 1000 measures of the gas. Dr. R. D. Thomson² gives the following analysis of London gas: Olefiant, 3.86 per cent.; carburetted hydrogen, 38.93; hydrogen, 46.43; vapour of water, 2.48; carbonic acid, .46; carbonic oxide, 5.62; nitrogen, 2.22. While testing the gases from the Chartered Company with Cooper's tube, which may be considered merely as an approximation to the truth, the author found that the common gas contained about 1 to 2 per cent. of carbonic acid, 4 to 5 per cent. of hydro-carbon vapours, $\frac{1}{2}$ to 2 per cent. of carbonic oxide; but the Cannel gas contained, of carbonic acid, from 1 to $1\frac{1}{2}$ per cent.; carbonic oxide, ditto; hydro-carbon vapour, 12 per cent. On a post-mortem examination of five bodies of persons, quoted by Dr. Taylor in his work on *Poisons*, there was congestion of the brain and its membranes, the pia mater gorged with blood, and the whole surface of the brain intensely red, and the blood coagulated. In two other cases there was congestion of the brain, but the blood was remarkably liquid. The effects, however, produced by the coal gas were owing to its long-continued respiration in a diluted state, which may account for their difference, when compared with the results of the above experiments. In these the blood of only one rat was loosely coagulated in the left ventricle of the heart. The brain also of all, excepting that killed by the foul gas, were free from congestion. Mr. William Bloxam, jun., has kindly favoured the author with notes of a case of poisoning by coal gas. The deceased was found on the top of a pair of steps, in a closet, in a sitting posture, his head on one side, his arms hanging down and his back leaning against the wall. (He was connecting a meter.) It is worthy of remark, that he did not appear to have ever attempted to descend from the steps.

Autopsy, twenty-four hours after finding the body.—The blood everywhere was fluid; the brain and membranes by no means congested—rather pale than otherwise; the lateral ventricles contained much pale serum; no coagulum in the corpus striatum, optic thalamus, crus cerebri, cerebellum, nor other position. The brain and cerebellum apparently healthy. A powerful odour of gas on opening the cranium, and slicing the brain down to the corpus callosum. The lungs did not collapse on raising the sternum; and the cartilages were dark red—darker at the back of the lobes (from gravitation of blood); the tissue healthy. The trachea and bronchi contained frothy mucus in some quantity. On securing a bronchus, removing lung, and collapsing by pressure, a very strong odour of gas was perceived. Right side of the heart distended—left nearly empty; blood black everywhere; heart healthy; no signs of irritation or disease in the abdominal viscera; congestion of the abdominal venous system. The author suggests that the deceased committed an error of judgment, which is too frequently the case, while adjusting the meter; for it appeared from an inquiry at the works, that he had connected the pipe with the meter first, instead of with the pipe from the main, which latter he was effecting with a running socket, so imperfectly united that sufficient gas escaped to destroy life. It will be evident that, as he was working with his head at the upper part of the closet on a level with the fanlight of the door, he should have been doubly cautious; for when the gas escaped, this part became a kind of gas-holder, and the deceased, having become insensible, was unable to lower his head beneath the frame of the fanlight, or had he but struggled and fallen, his life might have been spared. In numerous instances gas has appeared to act like an anæsthetic agent, by rendering the men while at work comatose, many of whom, when removed into the fresh air, gradually recover. They complain generally of a pricking sensation, resembling that from pins and needles; there is stupor, with violent headache, giddiness, nausea, and sometimes vomiting. The countenance is puffy and livid, being of a dark, bluish-black colour; they look tipsy, and are obliged to be led, their legs giving way from under them; and the breath smells strongly of gas.

¹ Chemistry of Gas-Lighting, p. 34.

² Evidence on Gas (Metropolis) Bill, 3523, June 29, 1860.

The author made some further experiments with Mr. Bannister on December 11, which were conducted in the same manner as the preceding, except that the animals were rendered insensible only, and four were afterwards exposed to fresh air; but the others to the action of ammonia and fresh air. Another experiment was made on December 13, when a rat was rendered insensible by means of common gas, and afterwards passed through water into a large glass vessel filled with oxygen. From these experiments it appeared that the animals recovered more quickly when exposed to fresh air than when other means were adopted.

Dr. BARNES related a case of poisoning by coal-gas. The patient was found perfectly insensible, and lying on his back. His countenance was of a dark, livid, leaden colour. He applied ammonia to the nostrils, and administered some to the mouth, the patient recovering on being exposed to the open air. The blue colour present in this case was much more striking than that observed in cases of poisoning from chloroform.

Dr. MARCET observed that it would be of interest to determine which were the constituents of coal-gas possessed of poisonous properties, and to ascertain their mode of action. He reminded the Society of the extremely dangerous nature of carbonic oxide—a substance constantly present in purified coal-gas; and alluded to a case of Dr. Taylor's reported by the author of the paper under consideration, when—if he (Dr. Marcet) had not misunderstood Dr. Aldis's statements—after death from the inhalation of coal-gas, the blood was found red in the vessels of the brain—an obvious indication of the fatal effects resulting, in this instance, from the action of carbonic oxide; otherwise that blood would have exhibited a dark venous colour. Dr. Marcet believed the hydro-carbon (light carburetted hydrogen and olefiant gas) constituents of coal-gas acted very differently from the carbonic oxide. Carbonic oxide produced death by altering the properties of the blood-corpuscles, a fact discovered by Professor Bernard; the inhalation of light carburetted hydrogen and olefiant gas gave rise, in all probability, to symptoms of anaesthesia, as would result from chloroform, only causing death when in a concentrated condition—namely, by paralysis of the muscles of respiration, or by cardiac syncope. He also thought fatal effects from the inhalation of gas may be due in some cases to asphyxia from spasm of the glottis, and offered several arguments in favour of this view.

Dr. ALDIS remarked that the term "asphyxia" was often loosely applied to cases of death from coal-gas, as if it resulted from the mere absence of air; whereas he believed, from the symptoms which followed the inhalation of coal-gas, that the system became affected by a sedative poison. Great negligence was too frequently displayed by gas-fitters while discharging their duties, whereby the public health and property were jeopardized; but he was glad to mention that, in consequence of the great fire which had occurred in Wood Street, and other accidents, Mr. Simmons, of New Palace-yard, had invented a gas-connector. He had seen the machine in operation, and could say that it was easily managed, and safer than the old plan of cutting a hole in the main. It was provided with a drill and valve, which, by preventing the escape of gas, rendered the instrument both economical and safe, the men being able to work without risk to life and destruction of property.—*Med. Times and Gaz.*, Feb. 1, 1862.

62. *Detection of Nicotine in the Viscera of a Snuff-taker.*—M. MORIN has examined the liver and lungs of a determined snuff-taker who died aged 70. The organs, cut up into little pieces, or triturated in a mortar with powdered glass, were brought into contact with distilled water acidulated by some drops of sulphuric or of oxalic acid. After several days, the liquid was filtered through paper devoid of carbonate of lime and reduced to one-third by ebullition. As it became thus concentrated, flocculi were produced and deposited. Thus reduced, it was filtered again and pure alcohol was poured on to it that gave rise to other flocculi, which were separated by filtration. When the alcohol had been driven off by evaporation a slight excess of pure potassa was added to the residue. After cooling, this mixture was agitated with sulphuric ether, which was decanted after some hours and evaporated in a pneumatic machine. The residue presented the irritating odour and acid flavour of nicotine, and comported itself just like that substance with various reagents.—*Med. Times and Gazette*, Jan. 11, 1862, from *Presse Belge*, No. 51.

AMERICAN INTELLIGENCE.

DOMESTIC SUMMARY.

Transplantation of Skin for the Relief of Contraction from a Burn.—Dr. CABOT showed to the Boston Society for Medical Improvement (Feb. 10, 1862), a little girl seven years of age, on whom he had performed this operation with entire success.

Three years ago, her clothes caught fire, and she was severely burned about her right hand and arm. At her entrance to the hospital, Dec. 13, 1860, there were extensive cicatrices over the greater part of the arm, which was flexed to its utmost, and could be but slightly extended on account of a dense, firm cicatrix, occupying the anterior part of the limb to an extent of three inches below and the same distance above the elbow. Dec. 22, the cicatrix, where it ascended in a point upon the front of the biceps muscle, was dissected up after two cuts had been carried down on each side of it, between it and the sound skin. The arm was extended as much as possible, carrying the V-shaped cicatrix with it, and the sound skin was brought together across the surface thus laid bare, and retained by iron wire sutures. There was some motion gained by this operation, though not very much. On Feb. 2, 1861, a pointed flap of skin was dissected up from the lower part of the chest and upper part of the abdomen, and the bands of cicatricial tissue having been divided in the bend of the elbow, so that the arm could be fully extended, into the surface thus laid bare the pointed piece of skin was secured by a few stitches, and the arm having been enveloped in cotton, was bent at a right angle and secured to the side. The extreme point of the flap sloughed, but the remainder united perfectly. The operation was completed by continuing the dissection of the skin from the trunk in a V shape, like the first, only having the point in the opposite direction, so that the whole formed an elongated lozenge; and the bands on the inner aspect of the joint having been divided, and the arm extended, this flap was secured like the first, though of course the arm was no longer secured to the side. The union of this flap was perfect, without any sloughing, in a short time. Subsequently, a subcutaneous band was divided with a tenotome, and the patient left the hospital, May 20, with almost perfect use of the arm.

Dec. 14, 1861, she again entered the hospital for the relief of a slight contraction, resulting from the sloughing of the apex of the first flap. This was accomplished by an operation similar to that by which the first slight relief was gained, and she now has the perfect use of her arm.

An interesting feature in the case is, that sensation began in the flap at the point where union first took place, at the angle opposite the pedicle, and gradually spread towards the pedicle, which part was for a long time insensible. The sensation was never referred to the part from which the flap was taken, but always to the arm.—*Boston Med. and Surg. Journal*, Feb. 27, 1862.

Compound Dislocation of the Tibia at the Ankle Joint, with Compound Comminuted Fracture and Dislocation of the Fibula.—Dr. S. L. WISWELL, of Cabot, Vt., relates (*American Medical Times*, Jan. 25, 1862) the following case of this, in which he was fortunate enough to preserve the limb.

“Mr. J. W., aged 53, on the 19th of June, 1861, after falling from a frame a distance of ten or twelve feet, was struck with a heavy piece of timber on the right leg, a short distance above the ankle. On examination of the injured parts shortly after, the articulating surface of the tibia was found driven through an opening four and three-quarter inches in length; the fibula fractured at the distance of four inches above the joint, also again at the distance of one inch above,

and the tissue between the points of fracture so injured, that sloughing resulted a few days subsequently, leaving a wound three and three-quarter inches in length, and some three inches in width. The principal arteries escaped injury. I decided to save the foot, if possible, and, having reduced the dislocation and placed the limb in its proper position, I prepared myself to combat the constitutional disturbances that I knew must arise. The case was watched with no little anxiety, and remedies administered accordingly. For the first ten days the pulse was kept below 100 by the judicious use of *veratrum viride*. Patient was slightly delirious at times for the first two weeks. Yeast and charcoal poultices were freely used until all danger of mortification was passed, and creosote was added to the poultices so long as any antiseptic was deemed necessary. As may be supposed, the discharge of pus and purulent synovia was abundant; to guard against the bad effects of which, bark and wine were liberally administered. The hypophosphites of lime and soda were also given, with the apparent effect of increasing the appetite.

"The various mechanical contrivances made use of to contribute to the patient's comfort, and keep the foot in place, were by no means peculiar, and consequently need not be described. After three weeks, he was in a fit condition to be removed to his home, a considerable distance; the limb being carefully bandaged and supported. During the six months that have elapsed since the injury, several small pieces of bone have been removed, and from the present appearance of the limb I feel justified in predicting a good limb. Of course amputation, if it had resulted favourably, would have saved much time; but I imagine that no surgeon, in these good days of conservatism, would be willing to say that I purchased the limb at too dear a cost."

Complete Inversion of the Uterus with an Adherent Placenta, following a Natural Labour.—Dr. O. N. ELLIS, of Dresden, Ohio, records (*Ohio Med. and Surg. Journal*, Jan. 1862) the following example of this:—

On Monday, May 6, about one o'clock P. M., was called to see Mrs. R. G.—, æt. 26, a woman of sanguineo-lymphatic temperament, in her third labour. Made an examination per vaginam; found the os uteri dilated to about the size of a quarter dollar. After a few moments conversation with the patient, and some charges to the attendants, I left her room, and did not see her again until four o'clock of the same afternoon. During this interval the labour had progressed rather slowly, owing to the rigidity of the parts, and, knowing her previous history, did not think of anything else than a tedious labour. The pains, however, grew more marked and distinct in the course of half an hour afterward; and at about half past five o'clock, four and a half hours from my first visit, a healthy female child was born. The woman was not fatigued, was in good spirits, and conversed freely with her attendants. Soon after the birth of the child, not to exceed a quarter of an hour, she began to have strong expulsive pains accompanied with some hemorrhage, though not to exceed the usual quantity. They continued for a short time, appearing at longer intervals, and finally ceased altogether. I now made a thorough examination of the interior of the uterus; found its walls patulous, the placenta at the fundus, very large in size, and very hard to the touch. The usual "ready remedies," friction over the utero-abdominal surface, cold applications, etc., were used, but with no effect; and from the very alarming nervous prostration, and request of the patient, I sent for counsel. Drs. Cass and Lemert came promptly to my assistance. Teaspoonful doses of wine of ergot were administered at intervals of ten minutes, sufficient to quicken the contractions, with friction over the abdomen. Strong contractions now came on. The uterus could be distinctly felt as a round, hardened mass; but at the fundus little or no contractions could be felt during a pain. But a short time had elapsed from the administration of the third dose of ergot, and whilst my hand was on the abdomen, I felt the uterus contract suddenly, and as suddenly glide from under my hand. Upon examination, the cavity of the vagina was found filled, and a substance supposed by us all to be the placenta. Following this, alarming prostration seized the patient, "feeling," as she described it, "as if she was sinking through the bed." Stimulants were now promptly administered, but with little or no effect. Upon examination, a mass resembling

a large piece of *boiled liver* in colour, but very hard in consistency, was found protruding entirely from the vagina. The umbilical cord was attached to the centre of this carnaceous mass, being very large and soft. As the parts relaxed the tumour increased in size, but no membranes could be found upon or about it. There could be no doubt now as to the case being one of complete inversion, as the broad and round ligaments could be felt just behind the protruding tumour. With great difficulty the placental mass was separated from the uterus, which was immediately replaced, contracting, upon itself, to the natural size, with the removal of the hand. All our efforts were now directed to the sinking condition of the patient, but she failed to rally, and died at nine o'clock of the same evening.

Dr. E. states that "at no time was any force applied at the cord."

Wound of the Eye; Extirpation of the Organ; followed by Fatal Tetanus.
—Dr. E. WILLIAMS records (*Cincinnati Lancet and Observer*, March, 1862) a case of wound of the eye by a large scale of iron, which flew off from a boiler while the patient was hammering upon it. Dr. W., convinced that there was in the eye a foreign body, wished to remove the organ, but the patient obstinately refused, and only consented three weeks after the accident, his sufferings in the meantime being very intense. Dr. W. enucleated the eye on the 24th of April: the patient went on well until the third evening after the operation, "when he began to experience some rigidity about the muscles of the jaw, and difficulty in swallowing. The following morning all the muscles on the right side of his face were perfectly inactive and flabby, while those on the opposite side were rigidly contracted, giving the patient the peculiar physiognomy of facial paralysis. He could still open the mouth about half an inch and swallow, but with labour. The tetanic contraction invaded successively the muscles of the neck, chest, abdomen and limbs; and he died on the morning of the 5th of May, one month after the accident, ten days after the operation, and seven days after the tetanus set in.

"On inspecting the eye, I found the retina destroyed by the suppuration, excepting a small floating portion around the optic entrance—choroid thickened and friable from the presence of lymph in its tissue—iris discoloured, swollen, and pushed forward against the cornea, pupil closed by a plug of yellowish lymph, lens turbid, very soft, and much diminished in size. Behind the iris, and moulded to its posterior surface and the inner surface of the corpus ciliare, was a mass of lymph, yellowish in colour, pretty firmly adherent to the surfaces from which it had exuded, and filling up nearly the anterior half of the cavity of the eye. This mass of lymph, permeated with numerous pus globules, was thickest and extended farthest back at the outer side of the eye, where I found just back of the equator a large scale of iron sticking firmly in the sclerotic. It was, by actual measurement, half an inch long, one quarter of an inch wide, and a little thicker than ordinary foolscap paper. Its surfaces were smooth, but the edges rough and irregularly serrated. Near the middle of its length were two corresponding notches, one on either side, in which it was firmly embraced by the sclerotic coat, one-half projecting into the orbit, and the other into the eye. It had passed through the globe, and half way out on the opposite side. In this position, the offending body was held so firmly that I had to enlarge the wound in the sclerotic with the scissors, in order to extricate it."

New Operation for Obstinate Strabismus. By E. ANDREWS, M. D.—"Certain cases of strabismus have always been considered incurable; among which are those which result from rupture of the external rectus oculi muscles, and those which are produced by a wound or injury within the internal angle of the lids, fastening the eye by a cicatrix. Yet there occur instances of this sort where the cure is of the utmost importance. Such are those where the sound eye happens, subsequently, to be ruined, while the strabismic one is so turned inward as to be rendered practically useless for supplying its place. In such case the patient is actually in the condition of a blind man, though having one eye perfect in everything but position. Having two such cases on hand, I resolved to try a new operation on one of them. The external rectus muscle had been ruptured, allowing the cornea to turn toward the internal canthus so far as to be

quite out of the reach of vision. Some surgeon had made an ineffectual operation on the old plan, the only result of which was to form a cicatrix, which glued the eye more firmly into its faulty position.

"Having administered ether and chloroform, I commenced, as in ordinary operations for strabismus, by cutting the conjunctiva on the inner side of the eye with the scissors; then, with a blunt hook, I picked up successively every band of cicatrix, tendon or fibrous tissue which interfered with the motion, and cut them off with the scissors until the globe could be freely turned outward, by seizing it with forceps and making traction. The eye was thus liberated from the bond, but as there was no external rectus, there was no voluntary power of keeping it to its place. I proceeded therefore as follows: Pinching up the conjunctiva on the outer side of the globe with the rat-tooth forceps, I cut it perpendicularly with the scissors, two lines from the cornea; commencing at the slit thus made, I dissected off the conjunctiva oculi from the slit outward quite to the lining of the lids at the external angle, denuding the inside and edge of the external canthus at the same time. I then took a silver ligature, bent in the form of a staple, and passed the two ends, first through the strip of conjunctiva remaining next to the cornea, and then through between the eyeball and external canthus, bringing them out through the skin at two points near the external border of the bony orbit. By drawing upon them, I rolled the eye well out, so as to press the cut edge of the conjunctiva against the denuded canthus, and then fastened the wire by a lead button. In this way the eye was secured firmly in a correct position. Some inflammation followed, which was readily held in check by cold water dressings. On the sixth day the suture was taken out, when the eye was found to maintain its correct position, and the operation proved a complete success.

"From the results of this experiment, it is obvious that some cases of strabismus which have hitherto been considered incurable, are capable of being rectified, and that this operation may restore useful vision to a class of patients which had been given over to virtual blindness, by the faulty position of the remaining sound eye,"—*The Chicago Med.-Examiner*, Jan. 1862.

[We regret that the above case has been so briefly reported, and so many important details are omitted. It is not stated by what accident the external rectus muscle was ruptured without a like lesion of the coats of the eye; what degree of vision the patient enjoyed after the operation; whether or not the eyeball was motionless; what degree of exophthalmos resulted, &c. &c., all important points in forming an estimate of the benefits resulting from the operation. Such cases must be extremely rare.

Our western exchanges furnish evidence that we have enterprising ophthalmic surgeons in this country who can rival their Teutonic and Gallic brethren in wonderful—we might perhaps say miraculous—achievements.]

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GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,
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NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Andrews, J. Charles	Pennsylvania.	Opium.
Angle, John S.	Pennsylvania.	Strumous Ophthalmia.
Applegate, Joseph W.	Indiana.	Scarlatinous Albuminuria.
Baldwin, Louis K.	Delaware.	Circulation of the Blood.
Barnes, Ira Norton	New Hampshire.	Acute Pleuritis.
Barton, J. Hervey	Pennsylvania.	Mitchella Repens.
Bates, John William P.	Maryland.	The Health of American Women.
Beane, William H.	Pennsylvania.	Puerperal Convulsions.
Berg, J. Frederick, Jr.	Pennsylvania.	The Student of Medicine.
Blaydes, James E.	Tennessee.	Inguinal Hernia.
Bower, Henry J.	Pennsylvania.	Asthma.
Brooks, Edward	New York.	The Intellectual Operations.
Burg, S. Wesley	Pennsylvania.	The Young Doctor.
Burnett, Joshua U.	New Brunswick.	Is Cholera Contagious?
Cantrell, William A.	Pennsylvania.	Erythroxyton Coca.
Carroll, Thomas	Pennsylvania.	Circulation of the Blood.
Conklin, Gustavus	Pennsylvania.	Acute Pneumonia.
Cook, William Harvey	Pennsylvania.	Reflex Action of the Spinal Cord.
Duffell, Charles L.	New Jersey.	Physiology of Death.
Edwards, James L.	Illinois.	Typhoid Fever.
Fitch, Pelatiah	New Jersey.	Signs of Pregnancy.
Gast, John Reynolds	Pennsylvania.	Obstruction of the Bowels.
Girvin, Robert M.	Pennsylvania.	Acute Bronchitis.
Graham, Samuel	Pennsylvania.	Conjunctivitis.
Grant, John	Nova Scotia.	Measles.
Hayes, Joseph H.	Pennsylvania.	Pertussis.
Healy, James	Kentucky.	Typhoid Fever.
Hidden, William Buffet	New Hampshire.	The Responsibilities of the Physician.
Hoffman, Christian N.	Pennsylvania.	Peritonitis.
Keen, William W., Jr.	Pennsylvania.	{ The Circulation as affected by Pressure.
King, Cyrus B.	Pennsylvania.	
Knipe, Jacob O.	Pennsylvania.	
Lane, Edward G.	Dist. of Columbia.	Diagnosis.
Lewis, Edward C.	Ohio.	Peritonitis.
Litz, Jefferson	Pennsylvania.	Amenorrhœa.
Marchand, James I.	Pennsylvania.	Veratrum Viride.
Marchand, William King	Pennsylvania.	Acute Pneumonia.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Martin, Joseph R.	Pennsylvania.	Leucorrhœa.
Maury, Frank F.	Kentucky.	Inflammation.
McClung, Leigh	Ohio.	Menstruation.
McCormick, S. Carson	Pennsylvania.	Cholera Infantum.
McGuigan, James A.	Pennsylvania.	Combustion.
McHenry, Thomas	Pennsylvania.	Typhoid Fever.
Miller, Jacob M.	Pennsylvania.	Eupatorium Perfoliatum.
Mitchell, H. Hedge	Massachusetts.	{ Microscopic Observations of the Blood in Inflammation.
Montmollin, James M.	Kentucky.	Gonorrhœa.
Mosser, M. Breneman	Pennsylvania.	Veratrum Viride.
Myers, Isaac N.	Indiana.	Types of Animal Organization.
Neblett, Henry M.	Virginia.	Opium.
Norris, John Clements	Maryland.	Scarlatina.
Okie, William T.	Pennsylvania.	Pleurisy.
Owens, John E.	Maryland.	The Evolution of Animal Heat.
Patterson, James B.	Illinois.	Reproduction.
Perry, Marshall S.	Massachusetts.	Diphtheritis.
Porter, George L.	Pennsylvania.	Tetanus.
Purcell, Wallace M.	Indiana.	Diagnosis.
Raker, Henry M.	Pennsylvania.	The Student and Practitioner.
Reed, J. Farley	Pennsylvania.	Atmospheric Air.
Reeves, William H. (M.D.)	Ohio.	Cases of Uterine Disease.
Reinholdt, John B.	Pennsylvania.	Diphtheria.
Robins, Lorenzo D.	Pennsylvania.	Opium as a Therapeutic Agent.
Rogers, Ebenezer	Pennsylvania.	Digestion.
Rumbold, F. Frazier	Wisconsin.	Microscopical Observations of the Blood.
Seip, George W.	Pennsylvania.	Diphtheria.
Shearer, James	Pennsylvania.	Diphtheria.
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Snyder, Peter C.	Pennsylvania.	Pneumonia.
Steckel, Edmund F.	Pennsylvania.	Inflammation.
Sternberg, A. Irving	New York.	Diphtheria.
Stewart, Jeremiah S.	Pennsylvania.	Diabetes Mellitus.
Strawn, Benjamin F.	Missouri.	Typhoid Fever.
Strode, John T.	Kentucky.	The Duties of the Young Accoucheur.
Stubbs, Joseph H.	Pennsylvania.	Enteric Fever.
Taylor, Brent W.	Kentucky.	Hydrocele.
Thompson, Ebenezer	Newfoundland.	Inflammation.
Thompson, Michael	Pennsylvania.	Enteric Fever.
Treadwell, Passmore	New Hampshire.	Cutaneous Transmission.

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Ohio	4
Indiana	3

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Tennessee	1
Missouri	1
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